FCC TEST REPORT (PART 27)

REPORT NO.: RF110704E02
MODEL NO.: MC300-2.7-FLF-81, MC300-2.7
FCC ID: V8YFWE81MC30000W
RECEIVED: July 04, 2011
TESTED: July 14 to 19, 2011
ISSUED: July 25, 2011

APPLICANT: Accton Wireless Broadband Corp.

ADDRESS: 3F, No. 1 Creation Rd. III, Science-based Industrial Park Hsinchu 30077, Taiwan, R.O.C.

ISSUED BY : Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory

LAB ADDRESS : No. 81-1, Lu Liao Keng, 9th Ling,Wu Lung Tsuen, Chiung Lin Hsiang, Hsin Chu Hsien 307, Taiwan

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RELEASE CONTROL RECORD

ISSUE NO.	REASON FOR CHANGE	DATE ISSUED
RF110704E02	Original release	July 25, 2011

1 CERTIFICATION

PRODUCT: WiMAX 802.16e Mini Card
BRAND NAME: AWB
MODEL NO.: MC300-2.7-FLF-81, MC300-2.7
TEST SAMPLE: R&D SAMPLE
APPLICANT: Accton Wireless Broadband Corp.
TESTED: July 14 to 19, 2011
TEST STANDARDS: FCC 47 CFR Part 2
FCC 47 CFR Part 27, Subpart C & M
ANSI/TIA/EIA-603-C-2004

The above equipment (Model No.: MC300-2.7-FLF-81) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : _____ , **DATE:** *July 25, 2011*
(Claire Kuan, Specialist)

APPROVED BY : _____ , **DATE:** *July 25, 2011*
(May Chen, Deputy Manager)

2 SUMMARY OF TEST RESULTS

The EUT has been tested according to the following specifications:

APPLIED STANDARD: FCC Part 27 & Part 2			
STANDARD SECTION	**TEST TYPE AND LIMIT**	**RESULT**	**REMARK**
2.1046 27.50(h)(2)	Maximum Peak Output Power Limit: max. 2 watts conducted peak power	PASS	Meet the requirement of limit.
2.1055 27.54	Frequency Stability Stay with the authorized bands of operation	PASS	Meet the requirement of limit.
2.1049 27.53(m)(6)	Emission Bandwidth	PASS	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Band Edge Measurements	PASS	Meet the requirement of limit.
2.1051 27.53(m)(4)(6)	Conducted Spurious Emissions	PASS	Meet the requirement of limit.
2.1053 27.53(m)(4)(6)	Radiated Spurious Emissions	PASS	Meet the requirement of limit.

2.1 MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

Measurement	Value
Radiated emissions (30MHz-1GHz)	4.00 dB
Radiated emissions (1GHz -18GHz)	2.49 dB
Radiated emissions (18GHz -40GHz)	2.70 dB

3 GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

PRODUCT	WiMAX 802.16e Mini Card
MODEL NO.	MC300-2.7-FLF-81, MC300-2.7
FCC ID	V8YFWE81MC30000W
POWER SUPPLY	DC 5V from host equipment
MODULATION TECHNOLOGY	OFDMA
MODULATION	Up Link :QPSK-1/2, -3/4, 16QAM-1/2, 3/4, 64QAM-1/2, -2/3, -3/4
	Down Link: QPSK-1/2, -3/4, 16QAM-1/2, 3/4, 64QAM-1/2, -2/3, -3/4
OPERATING FREQUENCY	5MHz: 2502.5MHz ~ 2687.5MHz 10MHz: 2505MHz ~ 2685MHz
CHANNEL BANDWIDTH	5MHz & 10MHz
MAX. CONDUCTED POWER	5MHz: 23.3dBm 10MHz: 23.6dBm
ANTENNA TYPE	Please see note
DATA CABLE	NA
I/O PORTS	NA
ASSOCIATED DEVICES	NA

NOTE:

1. The EUT has two model names which are identical to each other in all aspects except for the following table:

Brand	Model Name	Description
AWB	MC300-2.7-FLF-81	For marketing requirement
	MC300-2.7	

From the above models, model: **MC300-2.7-FLF-81** was selected as representative model for the test and its data was recorded in this report.

2. There are two sets antennas provided to this EUT, please refer to the following table:

Set 1				
Transmitter Circuit	Antenna Type	Antenna Connector	Antenna Gain (dBi)	Diversity Function
Chain(0)	PIFA	IPEX	2	YES
Chain(1)	PIFA	IPEX	2	YES
Set 2				
Transmitter Circuit	Antenna Type	Antenna Connector	Antenna Gain (dBi)	Diversity Function
Chain(0)	Dipole	IPEX	2	YES
Chain(1)	Dipole	IPEX	2	YES

3. For the EUT Modulation type and coding rate. After pre-testing items of output power and spurious emissions, QPSK-1/2 was found to be 5MHz /10MHz worst case, and was selected for the final test configuration.

Up Link		Down Link	
Modulation	Coding rate	Modulation	Coding rate
QPSK	1/2	QPSK	1/2
	3/4		3/4
16QAM	1/2	16QAM	1/2
	3/4		3/4
64QAM	1/2	64QAM	1/2
	2/3		2/3
	3/4		3/4

4. The PIFA antenna was pre-tested under the following test modes for three different axes placements:

Test Mode	Description
Mode A	X-Y plane
Mode B	Y-Z plane
Mode C	**X-Z plane**

From the above modes, the worst level was found in **Mode C**. Therefore only the test data of the modes were recorded in this report individually.

5. The EUT incorporates a SIMO function for WiMAX.

6. The EUT embedded a firmware for testing that needs to control from Notebook computer to let EUT with different DL/UL ration.

7. The device has different DL/UL ration in normal operation. It was tested with (DL:UL= 29:18) duty cycle mode for 5MHz and 10MHz, which is the worse mode, and controlled by software. (The detail duty cycle refer to appendix A).

8. The above EUT information was declared by manufacturer and for more detailed feature descriptions, please refers to the manufacturer's specifications or User's Manual.

3.2 DESCRIPTION OF TEST MODES

The following channels have been tested and presented.

CHANNEL BANDWIDTH: 5MHz

Low channel (L): 2502.5MHz.

Middle channel (M): 2600MHz.

High channel (H): 2687.5MHz.

CHANNEL BANDWIDTH: 10MHz

Low channel (L): 2505MHz.

Middle channel (M): 2600MHz.

High channel (H): 2685MHz.

3.2.1 TEST MODE APPLICABILITY AND TESTED CHANNEL DETAIL

EUT CONFIGURE MODE	APPLICABLE TO							DESCRIPTION
	OP	FS	EB	CE	CSE	RE<1G	RE≥1G	
MODE 1	√	√	√	√	√	√	√	Channel Bandwidth: 5MHz with PIFA antenna
MODE 2	√	-	√	√	√	√	√	Channel Bandwidth: 10MHz with PIFA antenna
MODE 3	-	-	-	-	-	√	√	Channel Bandwidth: 5MHz with Dipole antenna
MODE 4	-	-	-	-	-	√	√	Channel Bandwidth: 10MHz with Dipole antenna

Where **OP:** Output power
FS: Frequency stability
EB: Emission bandwidth
CE: Channel edge
CSE: Conducted spurious emissions
RE<1G: Radiated emission below 1GHz
RE≥1G: Radiated emission above 1GHz

OUTPUT POWER MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

FREQUENCY STABILITY MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
M	OFDMA	Unmodulation

EMISSION BANDWIDTH MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

CHANNEL EDGE MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

CONDUCTED SPURIOUS EMISSIONS MEASUREMENT:

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2

RADIATED EMISSION MEASUREMENT (BELOW 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L	OFDMA	QPSK-1/2
MODE 2	L	OFDMA	QPSK-1/2
MODE 3	L	OFDMA	QPSK-1/2
MODE 4	L	OFDMA	QPSK-1/2

RADIATED EMISSION MEASUREMENT (ABOVE 1 GHz):

☒ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates, and antenna ports (if EUT with antenna diversity architecture).

☒ Following channel(s) was (were) selected for the final test as listed below.

TESTED MODE	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE
MODE 1	L, M, H	OFDMA	QPSK-1/2
MODE 2	L, M, H	OFDMA	QPSK-1/2
MODE 3	L, M, H	OFDMA	QPSK-1/2
MODE 4	L, M, H	OFDMA	QPSK-1/2

3.3 GENERAL DESCRIPTION OF APPLIED STANDARDS

The EUT is a RF product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

FCC 47 CFR Part 2

FCC 47 CFR Part 27, Subpart C & M

ANSI/TIA/EIA-603-C-2004

All test items have been performed and recorded as per the above standards.

NOTE: The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

3.4 DESCRIPTION OF SUPPORT UNITS

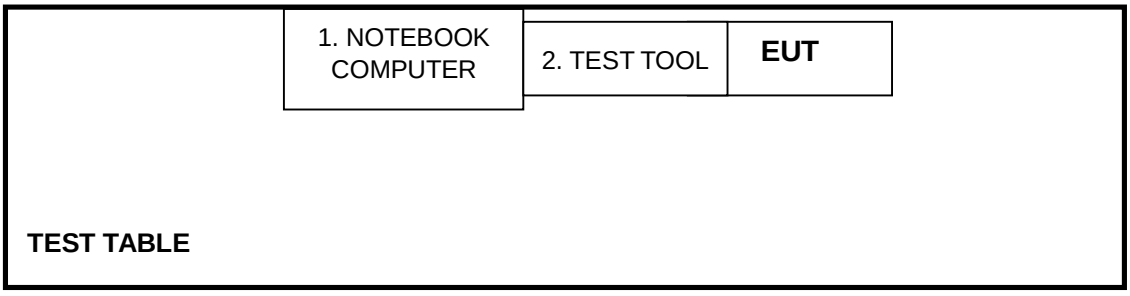
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.	FCC ID
1	NOTEBOOK COMPUTER	DELL	PP17L	CN-ONF743-48643-7AV-0124	FCC DoC
2	TEST TOOL	AWB	NA	NA	NA

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA
2	NA

NOTE: All power cords of the above support units are non shielded (1.8m).

3.4.1 CONFIGURATION OF SYSTEM UNDER TEST



4 TEST TYPES AND RESULTS

4.1 OUTPUT POWER MEASUREMENT

4.1.1 LIMITS OF OUTPUT POWER MEASUREMENT

The conducted output power shall be according to the specific rule Part 27.50(h)(2) that “All user stations are limited to 2 watts and 27.50(i) specific that “Peak transmit power shall be measure over any interval of continuous transmission using instrumentation calibration in terms of rms-equivalent voltage.”

4.1.2 TEST INSTRUMENTS

Test date: July 14, 2011

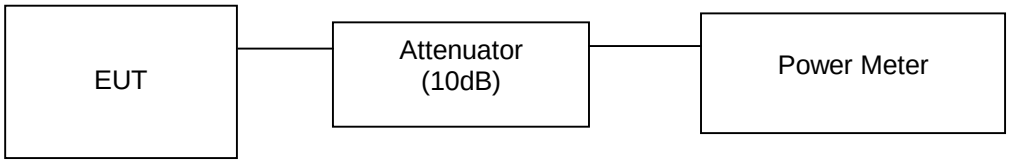
DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Anritsu Power meter	ML2495A	0824006	May 04, 2011	May 03, 2012
JFW 10dB attenuation	50HF-010-SMA	N/A	NA	NA

NOTE:
The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.1.3 TEST PROCEDURES

The transmitter output was connected to power meter through an attenuator. The test result was measured and recorded.

4.1.4 TEST SETUP



4.1.5 EUT OPERATING CONDITIONS

1. Connect the EUT with the support unit 1 (Notebook Computer) which is placed on a testing table.
2. The communicated partner run test program “X350 VSG Control Panel Release v4.02.00” to enable EUT under transmission/receiving condition continuously at specific channel frequency.

4.1.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz

INPUT POWER (SYSTEM)	120Vac, 60Hz		
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH	**TESTED BY**	Wen Yu

CONDUCTED POWER			
CHANNEL	**FREQUENCY (MHz)**	**POWER OUTPUT(mW)**	**POWER OUTPUT(dBm)**
Low	2502.5	208.930	23.20
Middle	2600	213.796	23.30
High	2687.5	208.930	23.20

CHANNEL BANDWIDTH: 10MHz

INPUT POWER (SYSTEM)	120Vac, 60Hz		
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH	**TESTED BY**	Wen Yu

CONDUCTED POWER			
CHANNEL	**FREQUENCY (MHz)**	**POWER OUTPUT(mW)**	**POWER OUTPUT(dBm)**
Low	2505	229.087	23.60
Middle	2600	218.776	23.40
High	2685	223.872	23.50

4.2 FREQUENCY STABILITY MEASUREMENT

4.2.1 LIMITS OF FREQUENCY STABILIITY MEASUREMENT

According to the FCC part 2.1055 and 27.54 shall be tested the frequency stability. The rule is defined that" The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block." The test extreme voltage is according to the 2.1055(d)(1) Vary primary supply voltage from 85 to 115 percent of the nominal value for other than hand carried battery equipment and the extreme temperature rule is comply with specification of EUT -30℃ ~ 50℃.

4.2.2 TEST INSTRUMENTS

Test date: July 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
R&S SPECTRUM ANALYZER	FSP40	100037	Aug. 02, 2010	Aug. 01, 2011
OVEN	MHU-225AU	911033	Dec. 16, 2010	Dec. 15, 2011
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
AC POWER SOURCE	6205	1140503	NA	NA

NOTE: 1. The calibration interval of the above test instruments is 12 months. And the calibrations are traceable to NML/ROC and NIST/USA.

4.2.3 TEST PROCEDURE

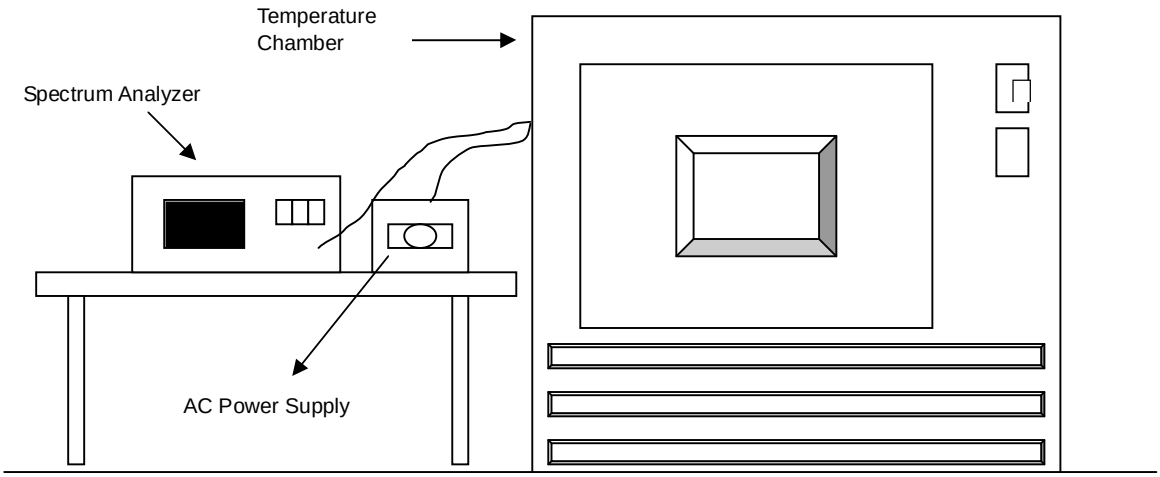
a. Power must be removed when changing from one temperature to another or one voltage to another voltage. Power warm up is at least 15 min and power applied should perform before recording frequency error.

b. EUT is connected the external power supply to control the AC input power. The various Volts from the minimum 102 Volts to 138 Volts. Each step shall be record the frequency error rate.

c. The temperature range step is 10 degrees in this test items. All temperature levels shall be hold the ±0.5℃ during the measurement testing.

d. The each temperature step shall be at least 0.5 hours, consider the EUT could be test under the stability condition.

4.2.4 TEST SETUP



4.2.5 TEST RESULTS

MODE	Middle channel (2600MHz)	INPUT POWER (SYSTEM)	120Vac, 60Hz
ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH	TESTED BY	Wen Yu

AFC FREQUENCY ERROR VS. VOLTAGE								
VOLTAGE (Volts)	0Minutes		2Minutes		5Minutes		10Minutes	
	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)
138	2600.02455	0.000944	2600.02463	0.000947	2600.02467	0.000949	2600.02486	0.000956
120	2600.02425	0.000933	2600.02445	0.000940	2600.02468	0.000949	2600.02479	0.000953
102	2600.02465	0.000948	2600.02468	0.000949	2600.02465	0.000948	2600.02482	0.000955

AFC FREQUENCY ERROR VS. TEMP								
TEMP (℃)	0Minutes		2Minutes		5Minutes		10Minutes	
	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)	FREQUENCY (MHz)	PPM (%)
50	2600.02546	0.000979	2600.02555	0.000983	2600.02569	0.000988	2600.02578	0.000992
40	2600.02537	0.000976	2600.02545	0.000979	2600.02557	0.000983	2600.02567	0.000987
30	2600.02543	0.000978	2600.02548	0.000980	2600.02553	0.000982	2600.02559	0.000984
20	2600.02425	0.000933	2600.02445	0.000940	2600.02468	0.000949	2600.02479	0.000953
10	2600.02522	0.000970	2600.02534	0.000975	2600.02544	0.000978	2600.02553	0.000982
0	2600.02537	0.000976	2600.02546	0.000979	2600.02553	0.000982	2600.02564	0.000986
-10	2600.02546	0.000979	2600.02557	0.000983	2600.02564	0.000986	2600.02576	0.000991
-20	2600.02557	0.000983	2600.02566	0.000987	2600.02571	0.000989	2600.02583	0.000993
-30	2600.02568	0.000988	2600.02573	0.000990	2600.02582	0.000993	2600.02597	0.000999

4.3 EMISSION BANDWIDTH MEASUREMENT

4.3.1 LIMITS OF EMISSION BANDWIDTH MEASUREMENT

According to FCC 27.53(m)(6) specified that emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26dB below the transmitter power.

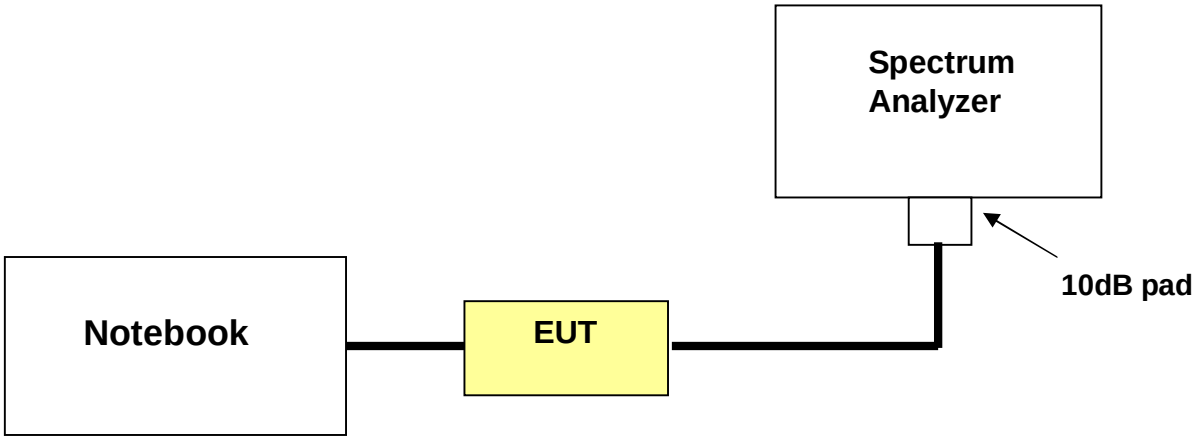
4.3.2 TEST INSTRUMENTS

Test date: July 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	April 25, 2011	April 24, 2012
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
JFW 10dB attenuation	50HF-010-SMA	N/A	N/A	N/A

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.3.3 TEST SETUP



4.3.4 TEST PROCEDURES

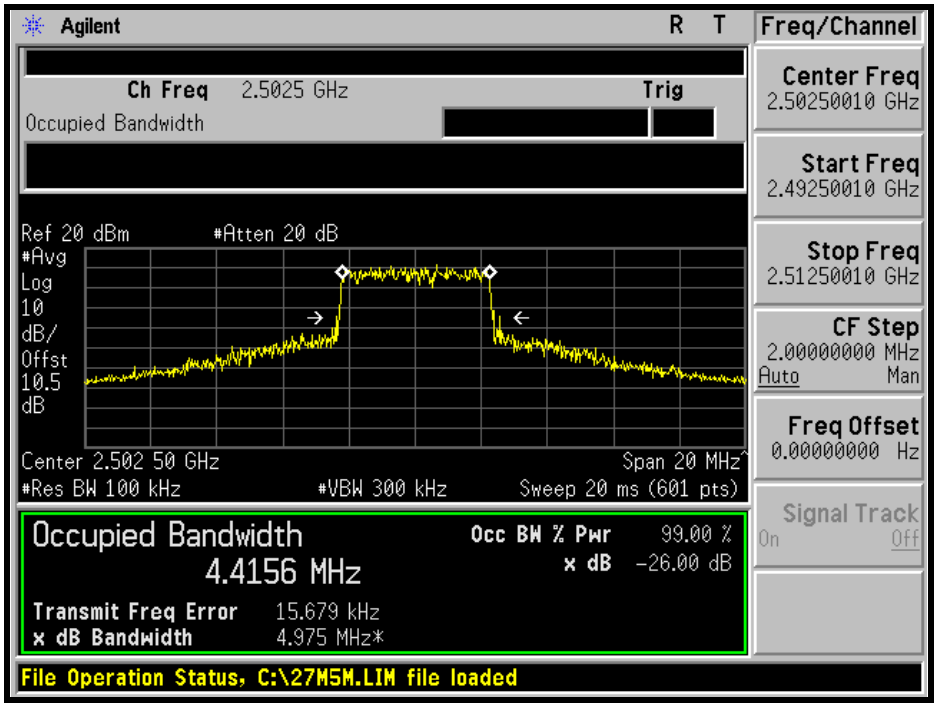
a. The Notebook controlled EUT to export rated output power under transmission mode and specific channel frequency. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100kHz RBW and 300kHz VBW. Measure the bandwidth at the -26dBc levels with respect to the reference level.

4.3.5 TEST RESULTS

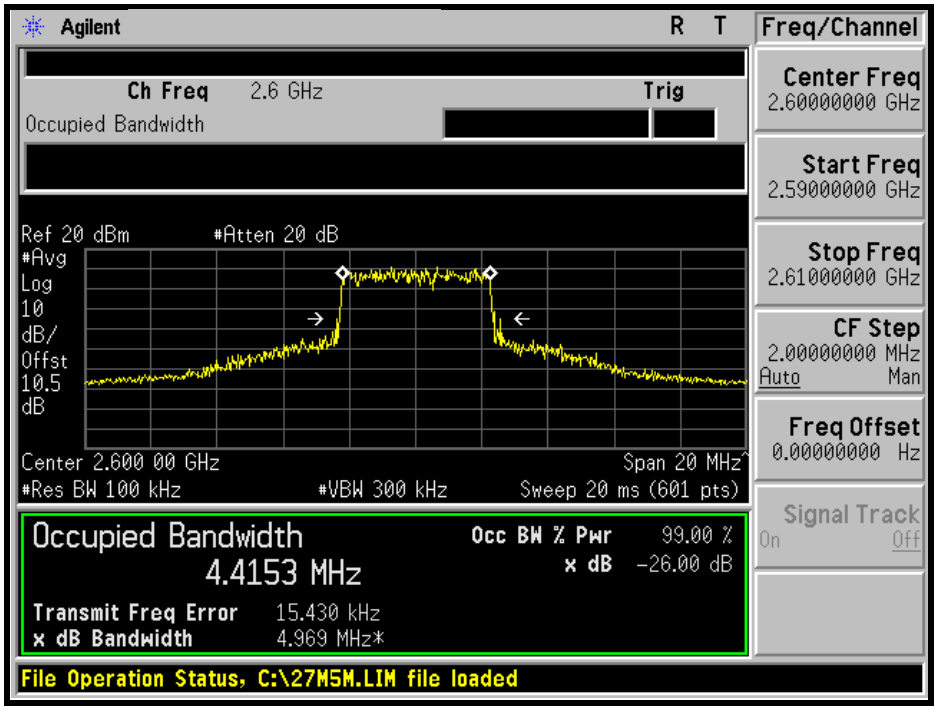
CHANNEL BANDWIDTH: 5MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2502.5	4.97
2600	4.96
2687.5	4.97

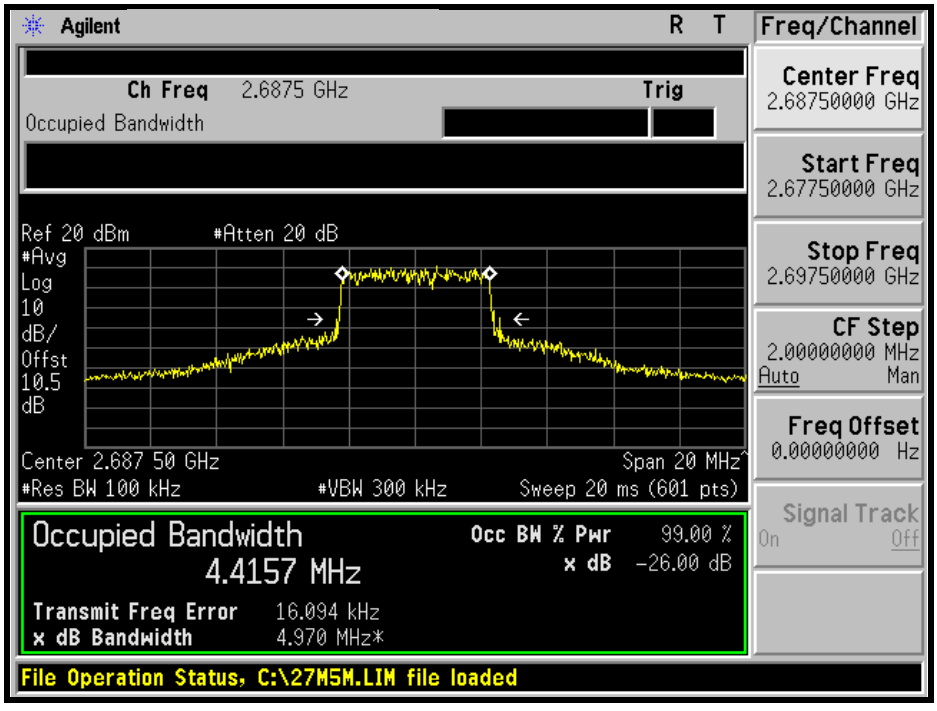
LOW CHANNEL



MIDDLE CHANNEL



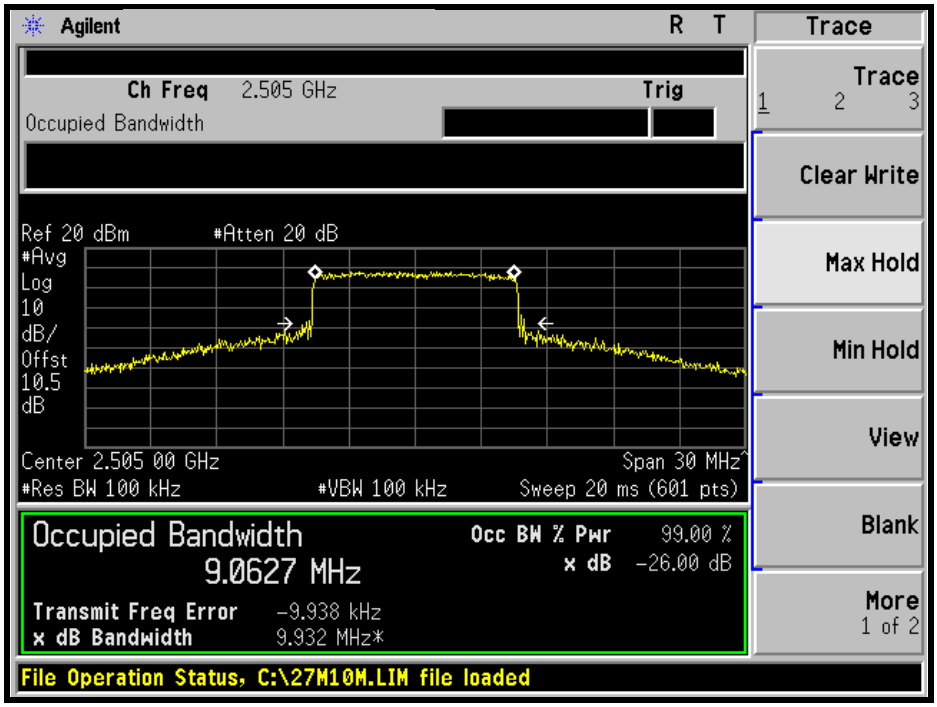
HIGH CHANNEL



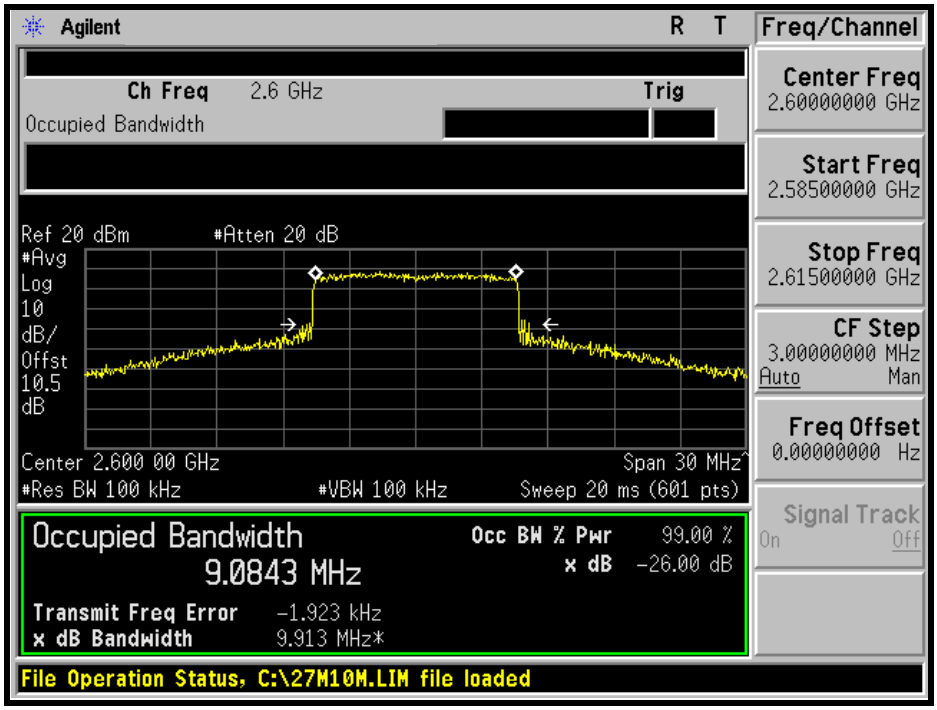
CHANNEL BANDWIDTH: 10MHz

FREQUENCY (MHz)	-26 dBc BANDWIDTH (MHz)
2505	9.93
2600	9.91
2685	9.93

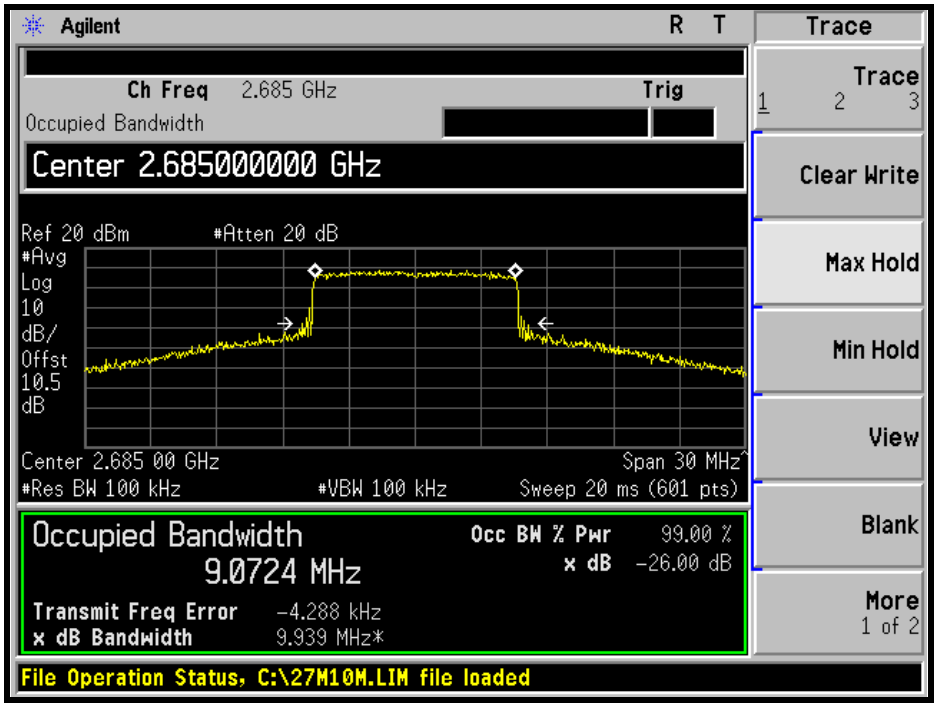
LOW CHANNEL



MIDDLE CHANNEL



HIGH CHANNEL



4.4 CHANNEL EDGE MEASUREMENT

4.4.1 LIMITS OF CHANNEL EDGE MEASUREMENT

According to FCC 27.53(m)(4) specified that power of any emission outside of the channel edge must be attenuated below the transmitting power (P) by a factor of at least 43 + 10 log(P)dB and 55 + 10 log (P) dB at 5.5 MHz from the channel edges. In the 1MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed.

4.4.2 TEST INSTRUMENTS

Test date: July 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	April 25, 2011	April 24, 2012
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
JFW 10dB attenuation	50HF-010-SMA	NA	NA	NA

NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.4.3 TEST SETUP

Same as Item 4.3.3

4.4.4 TEST PROCEDURES

a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.

b. For Channel bandwidth: 5 MHz:

The center frequency of spectrum is the band edge frequency and span is 20MHz. RBW of the spectrum is 51kHz and VB W of the spectrum is 160kHz.

c. For Channel bandwidth: 10 MHz:

The center frequency of spectrum is the band edge frequency and span is 30MHz. RB W of the spectrum is 100kHz and VB W of the spectrum is 300kHz.

d. Record the max trace plot into the test report.

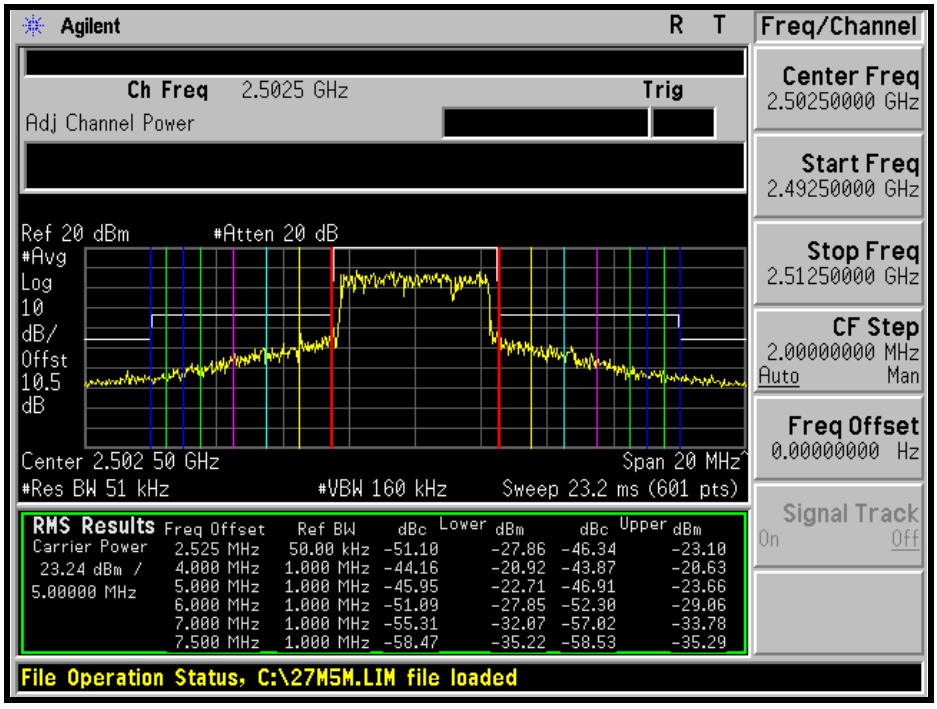
4.4.5 EUT OPERATING CONDITION

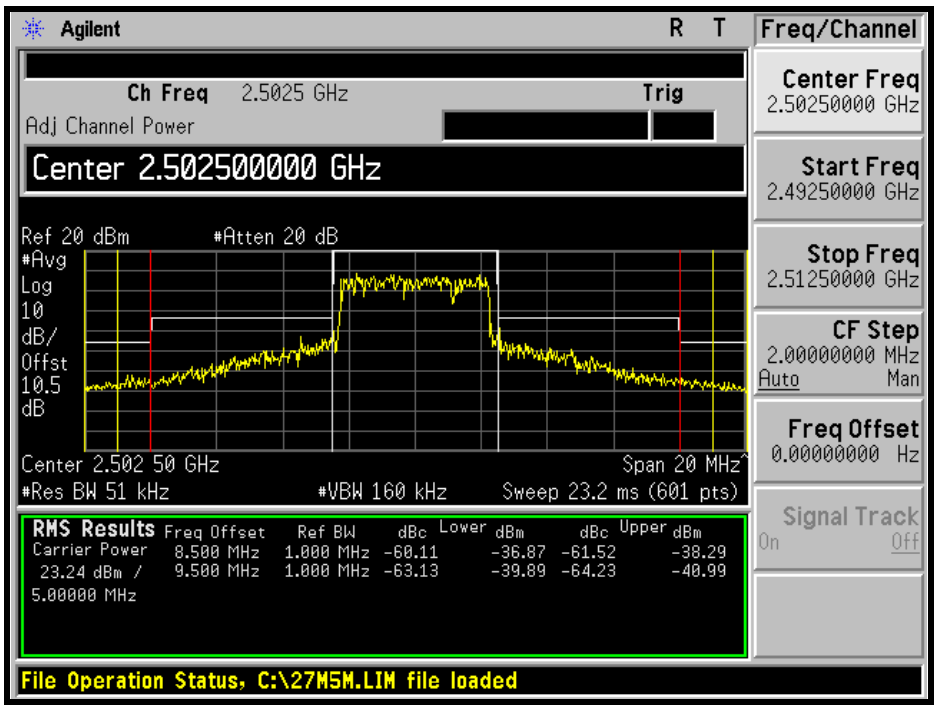
Same as item 4.1.5

4.4.6 TEST RESULTS

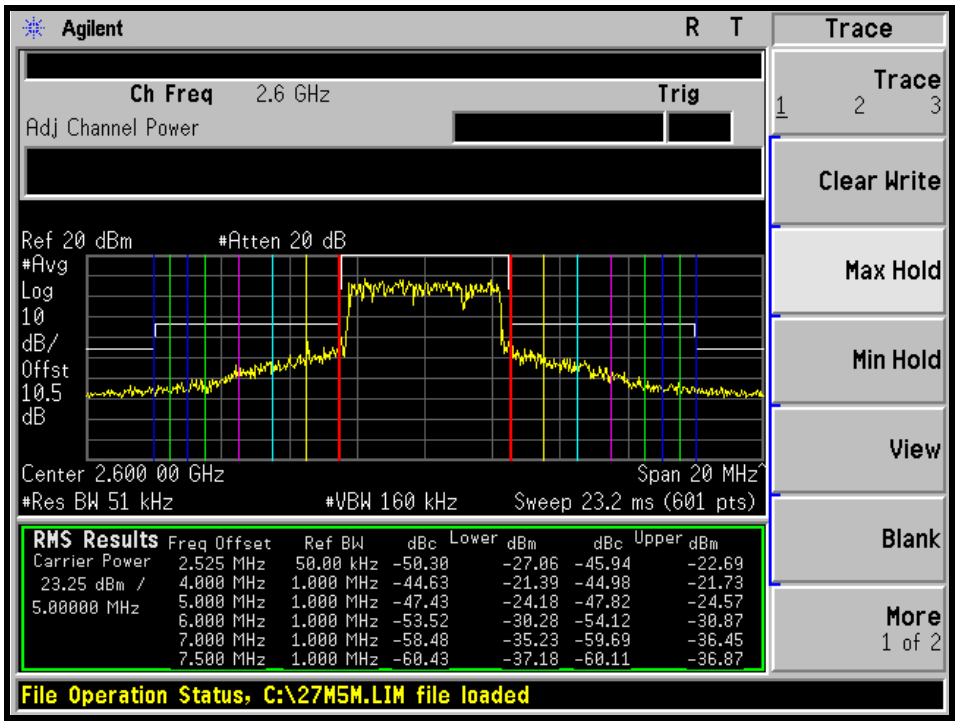
CHANNEL BANDWIDTH: 5MHz

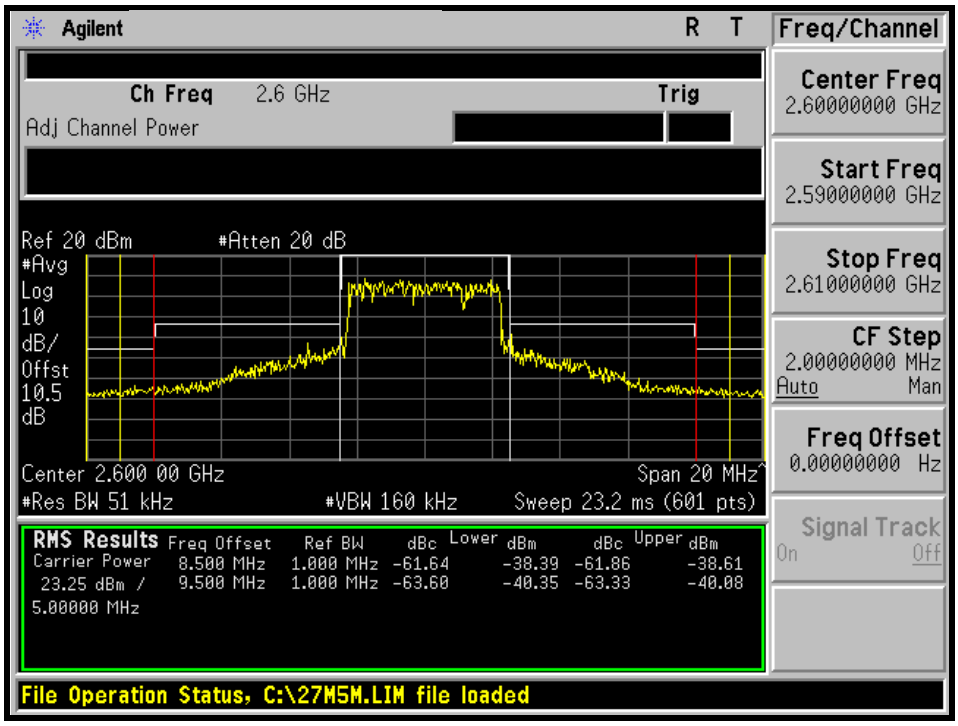
LOW CHANNEL



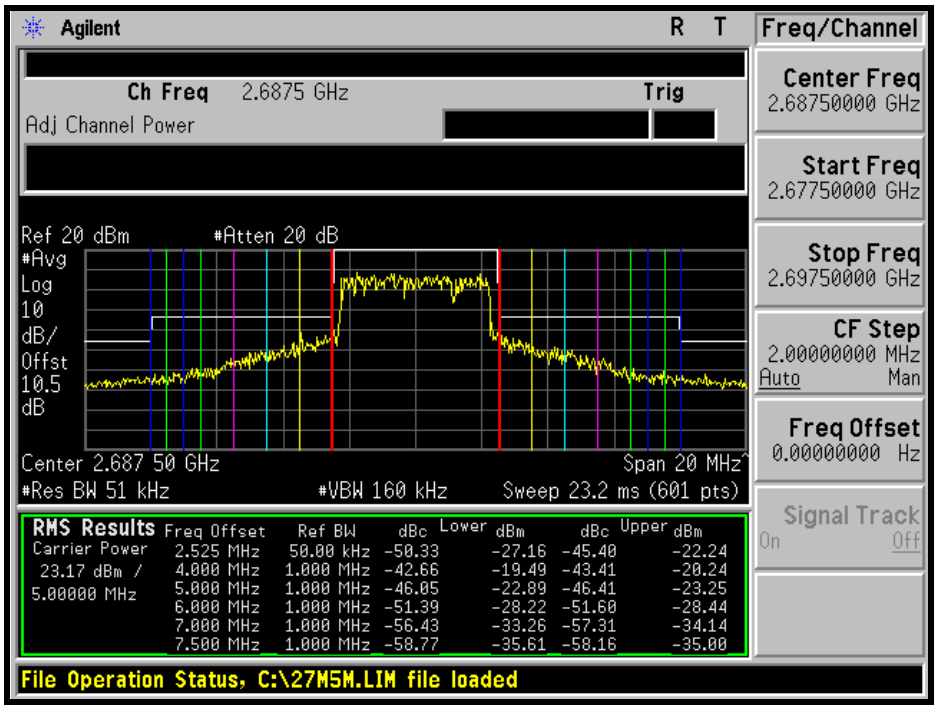


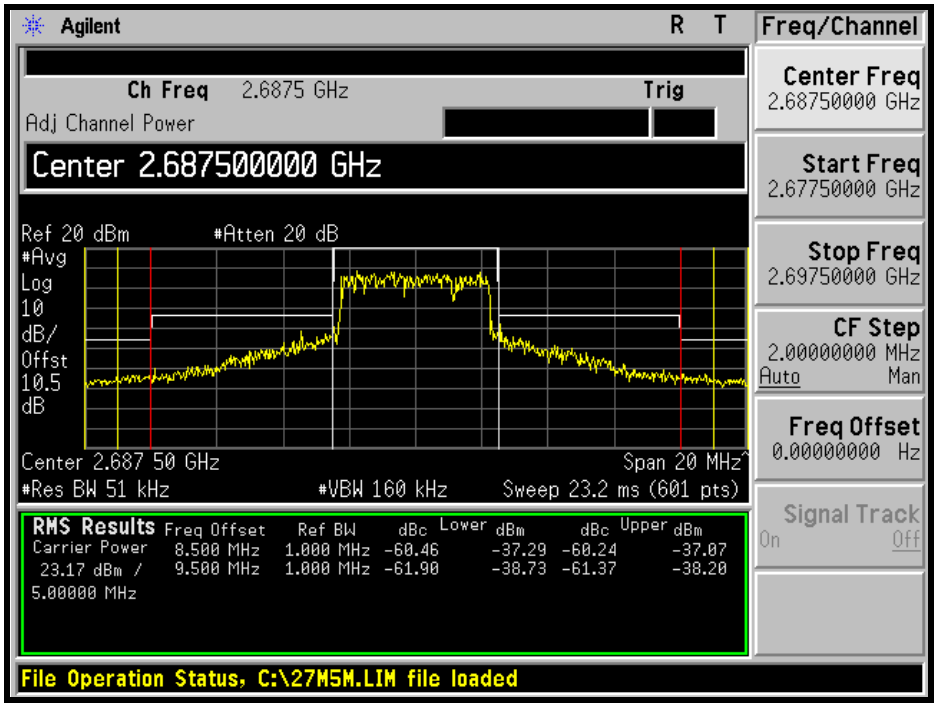
MIDDLE CHANNEL





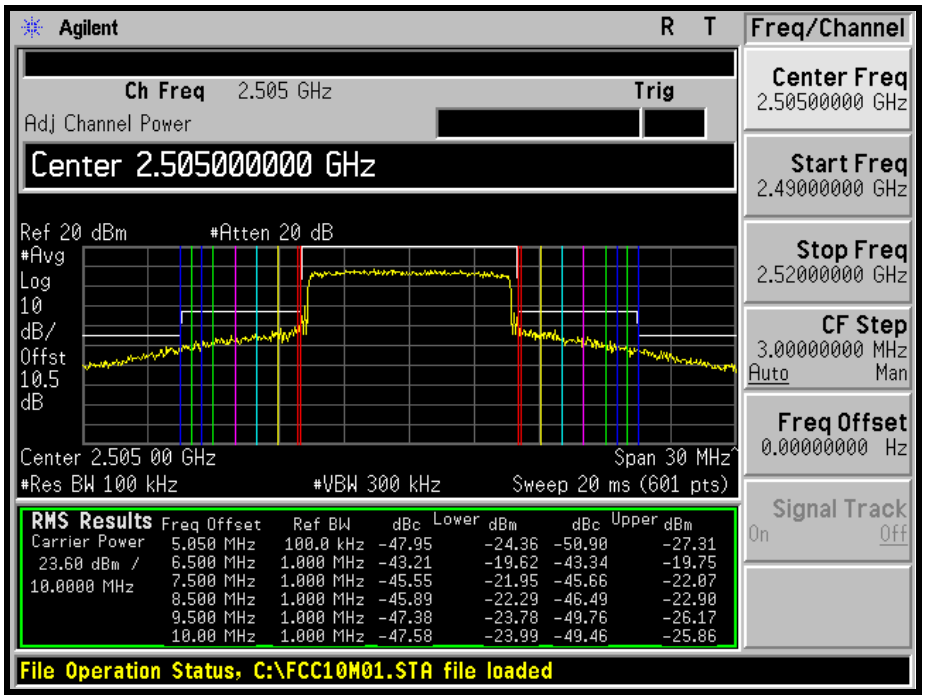
HIGH CHANNEL

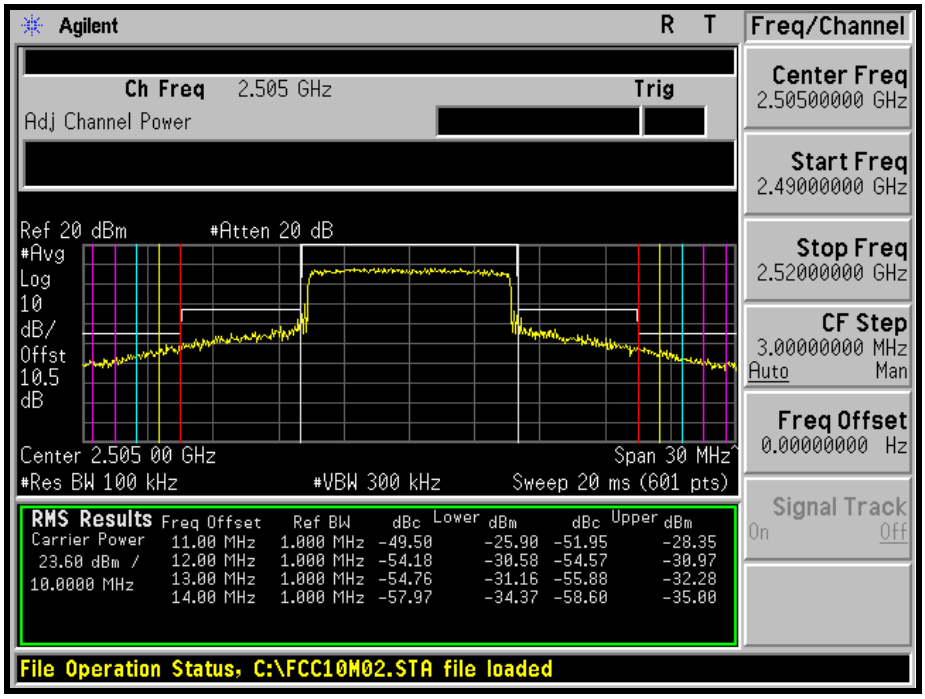




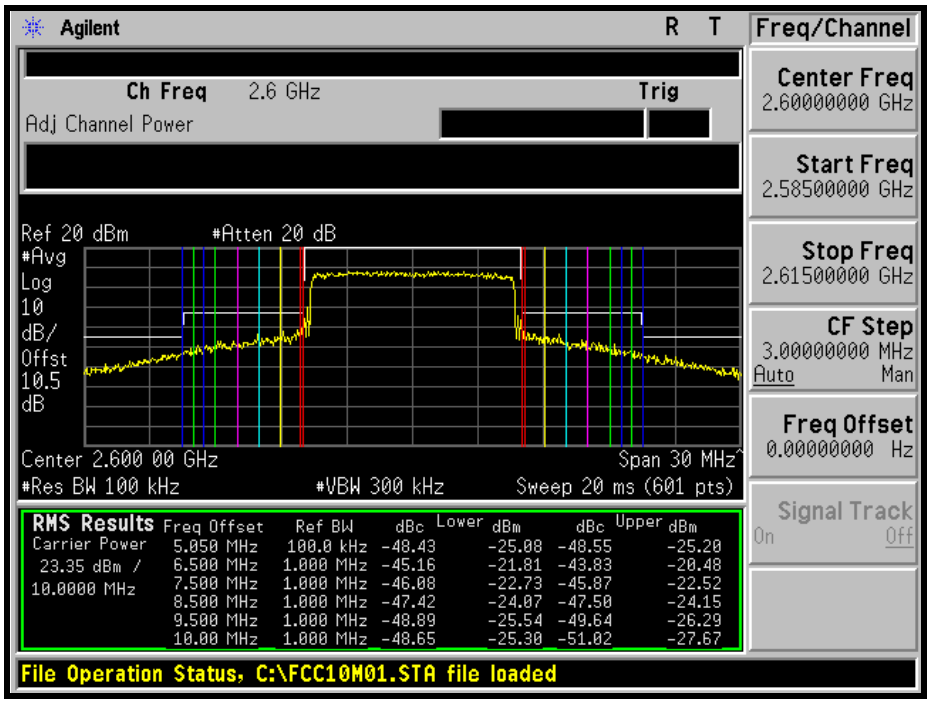
CHANNEL BANDWIDTH: 10MHz

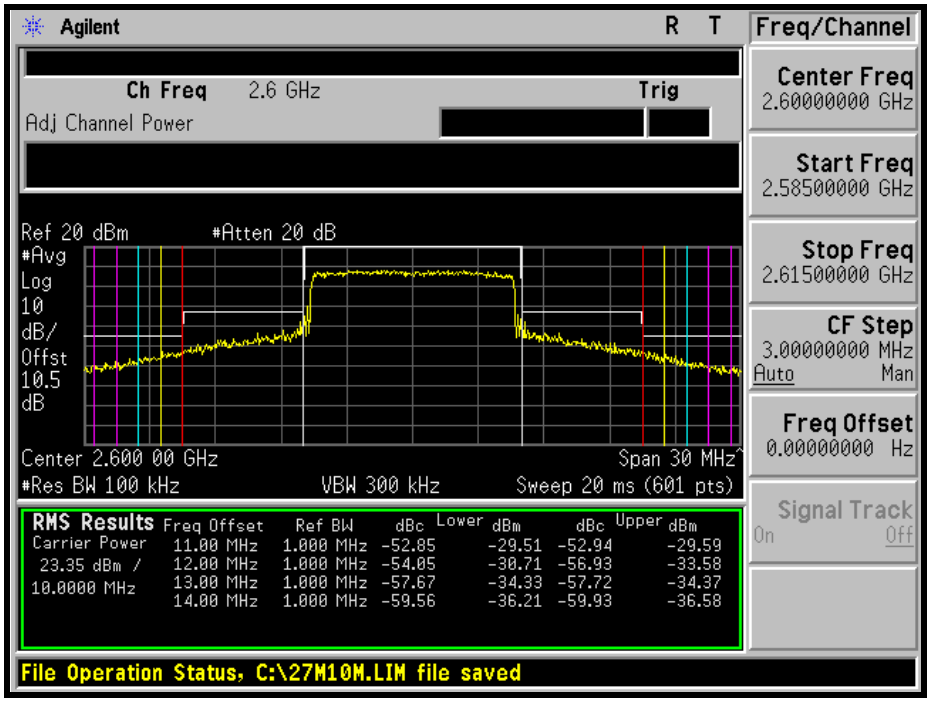
LOW CHANNEL



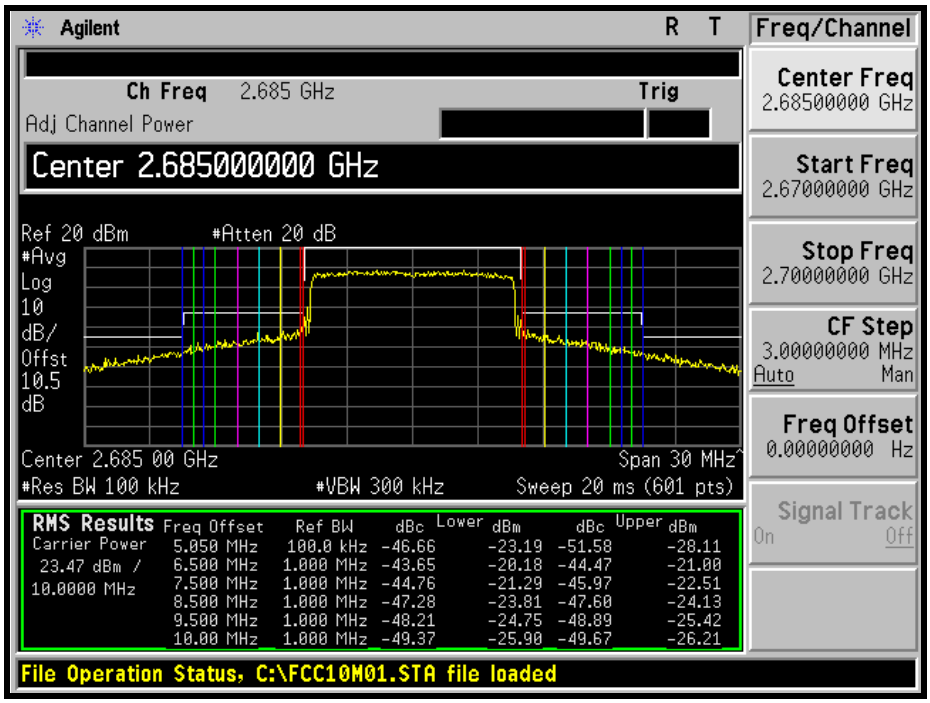


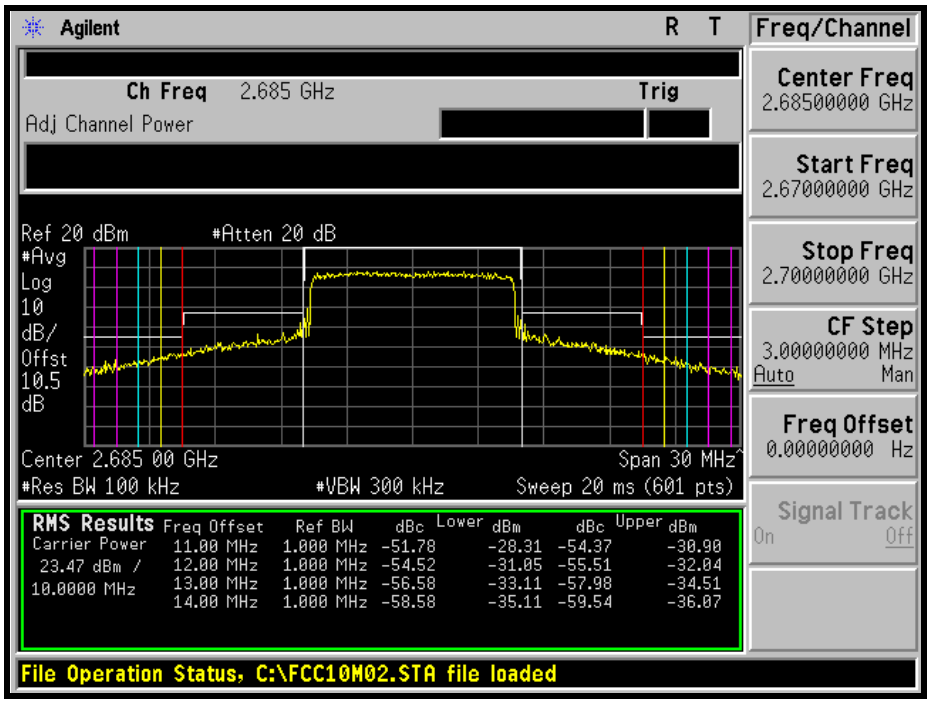
MIDDLE CHANNEL





HIGH CHANNEL





4.5 CONDUCTED SPURIOUS EMISSIONS

4.5.1 LIMITS OF CONDUCTED SPURIOUS EMISSIONS MEASUREMENT

In the FCC 27.53(m)(4), On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 +10 log (P)dB and 55 + 10 log (P) dB at 5.5 MHz from the channel edges.

4.5.2 TEST INSTRUMENTS

Test date: July 14, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
Agilent Spectrum Analyzer	E4446A	MY46180622	April 25, 2011	April 24, 2012
HUBER+SUHNER	SUCOFLEX104	222684/4	Aug. 14, 2010	Aug. 13, 2011
JFW 10dB attenuation	50HF-010-SMA	NA	NA	NA

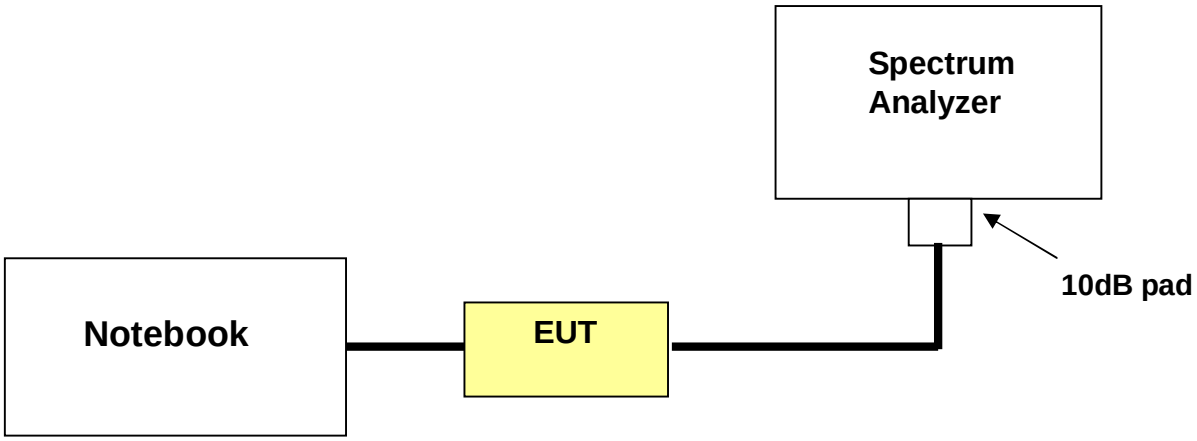
NOTE: The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.

4.5.3 TEST PROCEDURE

a. The EUT was set up for the rated peak power. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels: low, middle and high operational frequency range.

b. When the spectrum scanned from 30MHz to 27GHz, it shall be connected to the 10dB pad attenuated the carried frequency. The spectrum set RB = 1MHz, VB = 3MHz.

4.5.4 TEST SETUP



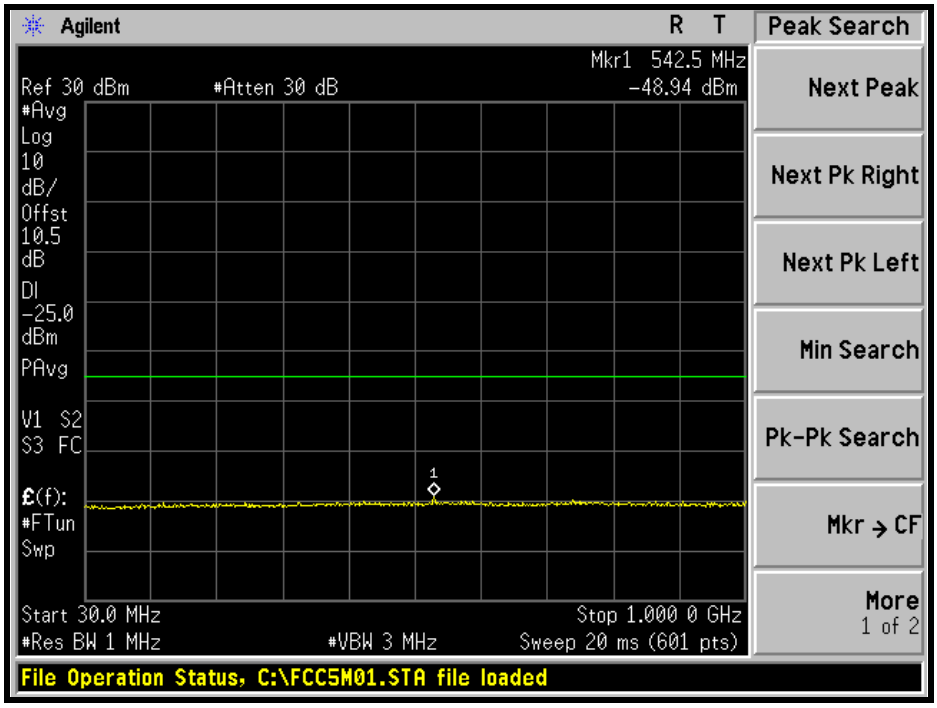
4.5.5 EUT OPERATING CONDITIONS

Same as item 4.1.5

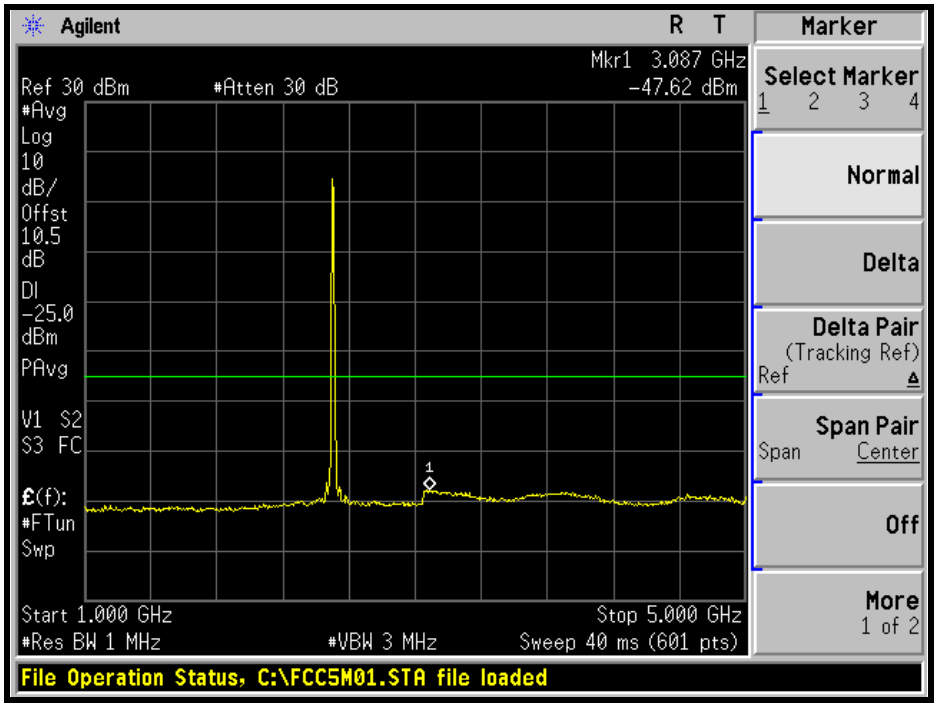
4.5.6 TEST RESULTS

CHANNEL BANDWIDTH: 5MHz

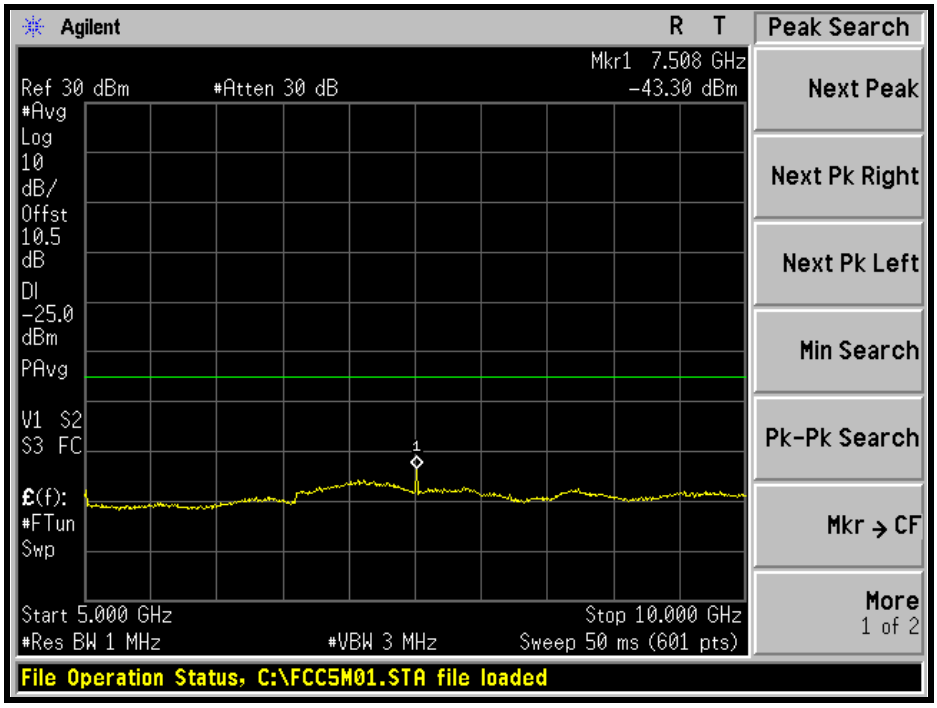
LOW CHANNEL: 30MHz ~ 1GHz:



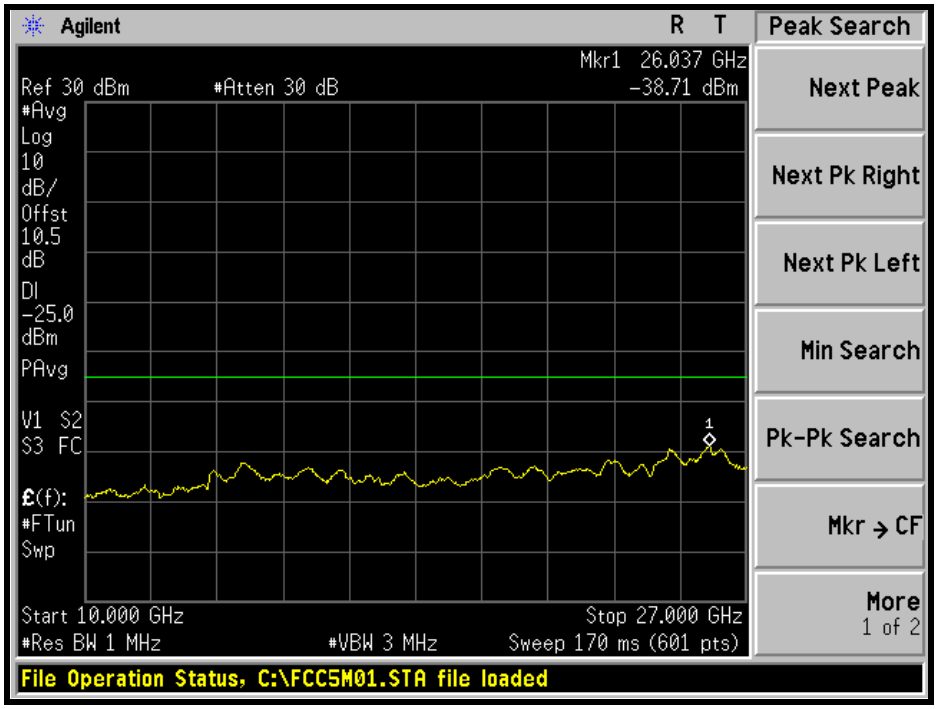
1GHz ~ 5GHz:



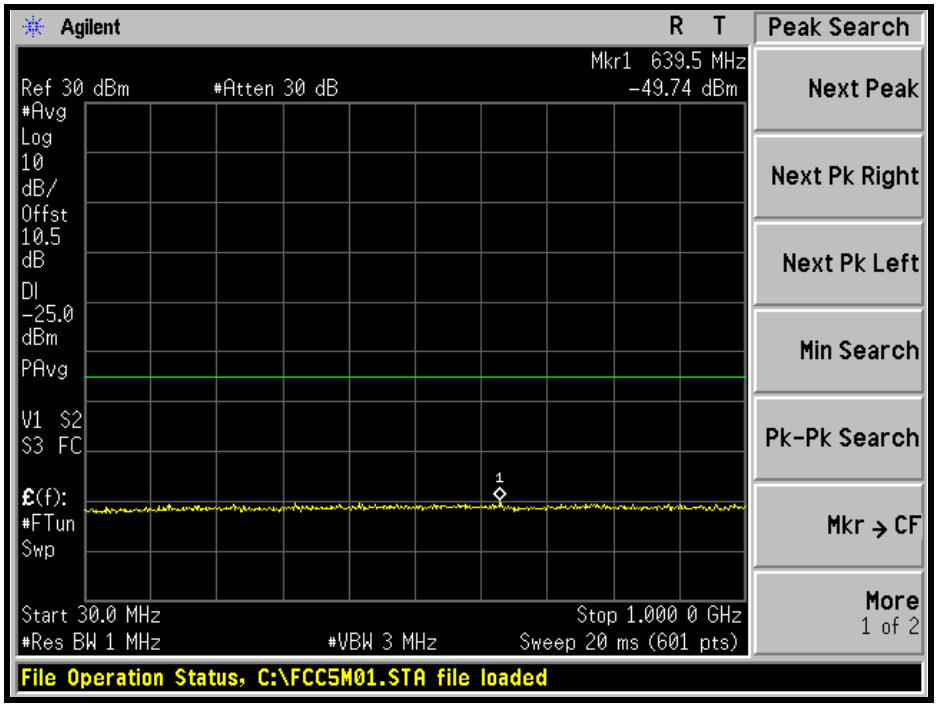
5GHz ~ 10GHz:



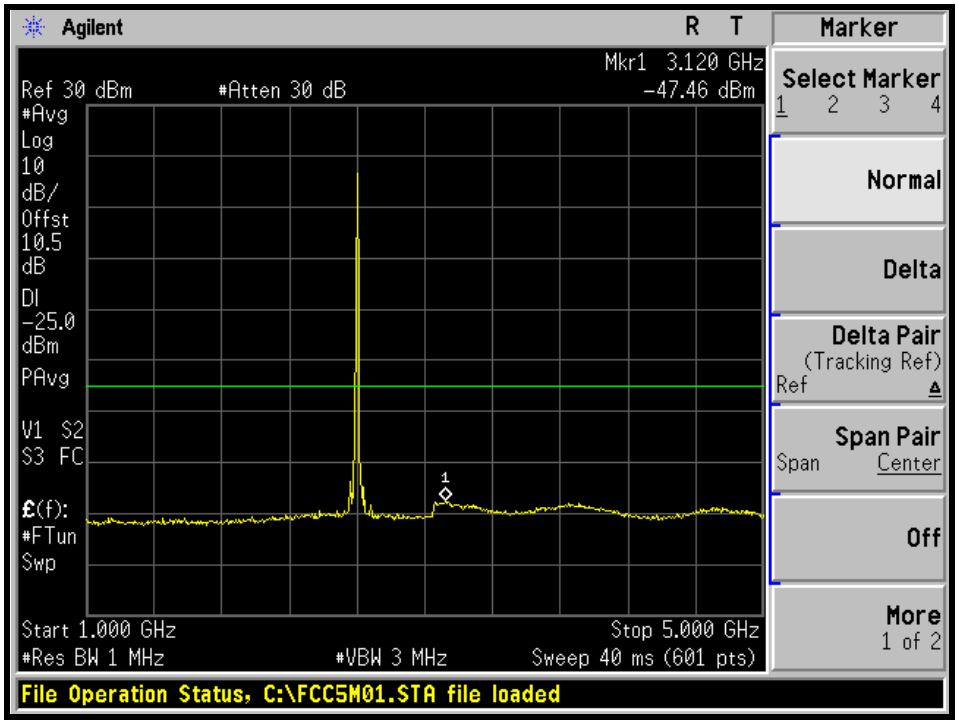
10GHz ~ 27GHz:



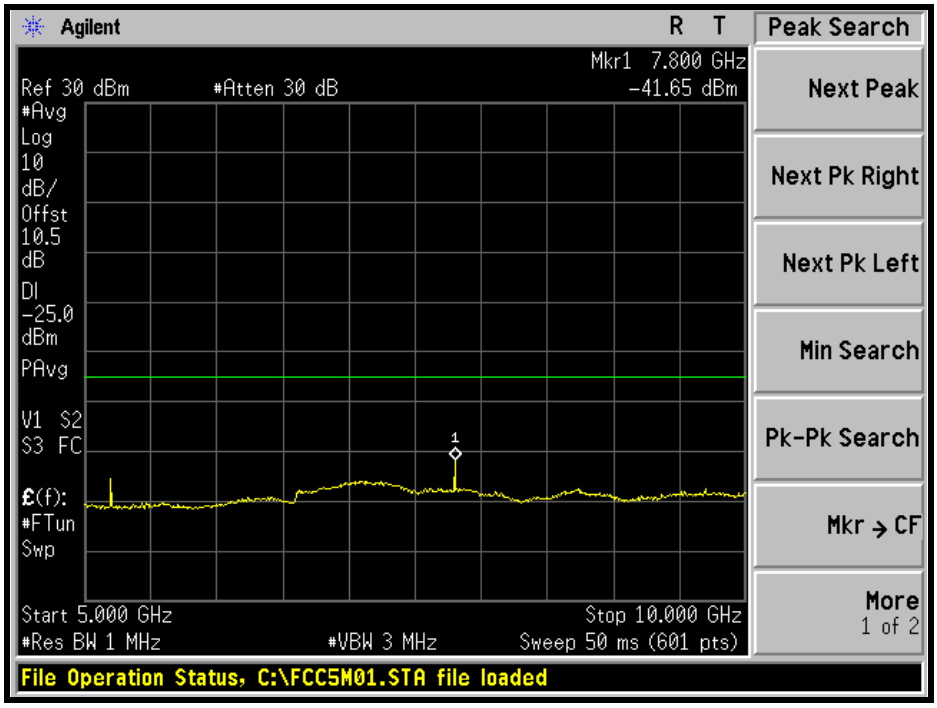
MIDDLE CHANNEL: 30MHz ~ 1GHz:



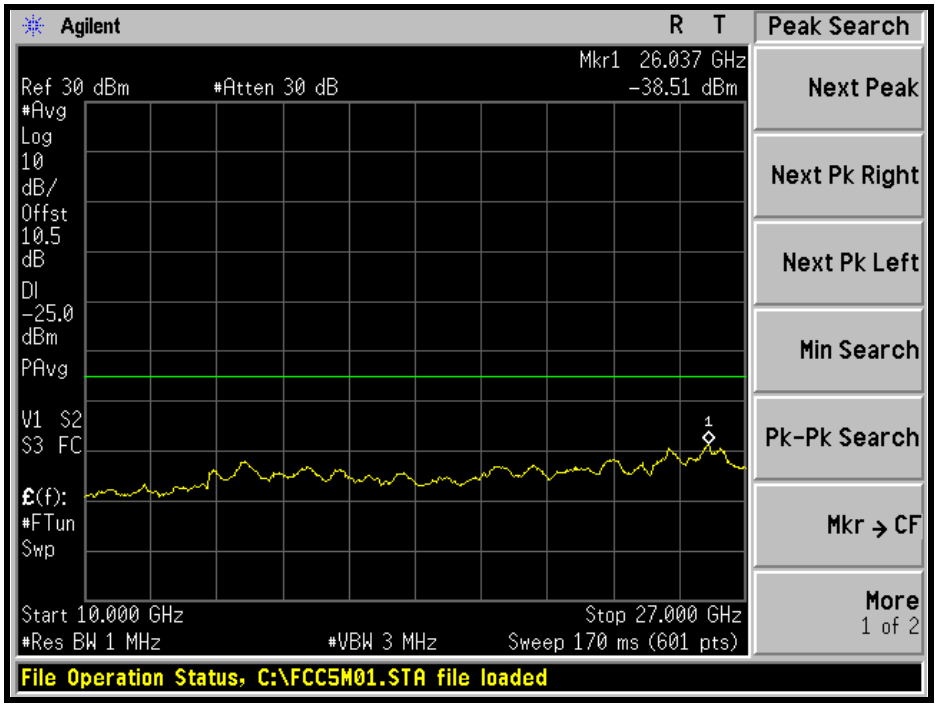
1GHz ~ 5GHz:



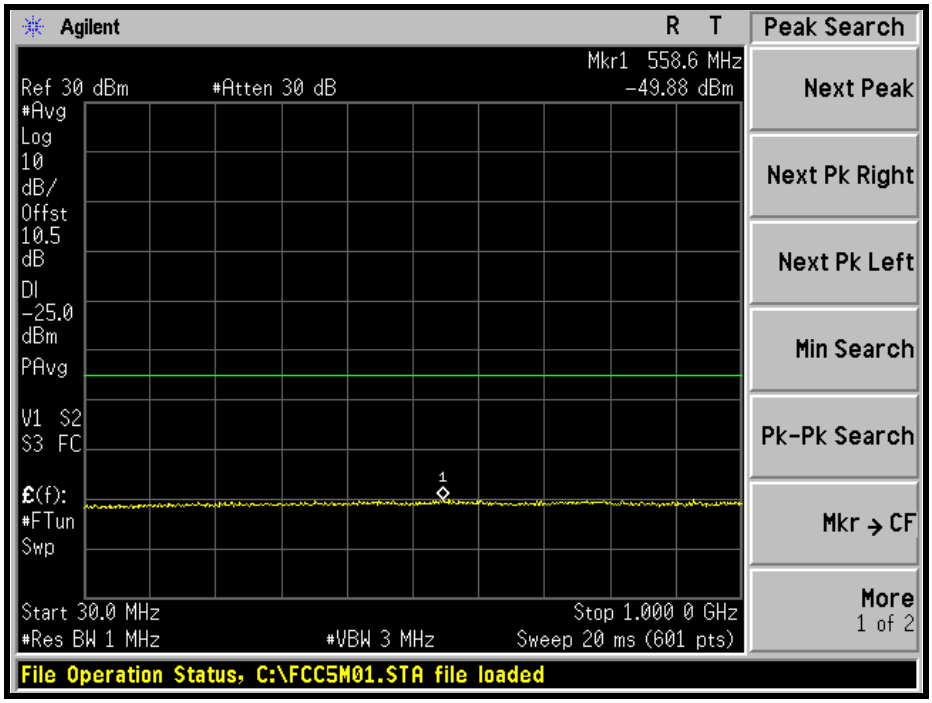
5GHz ~ 10GHz:



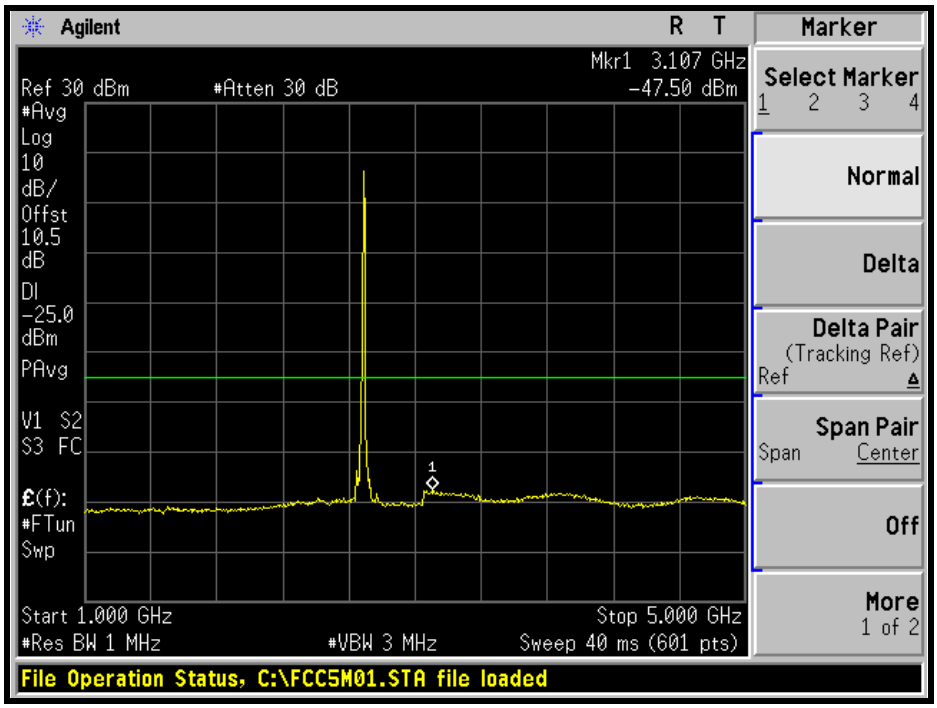
10GHz ~ 27GHz:



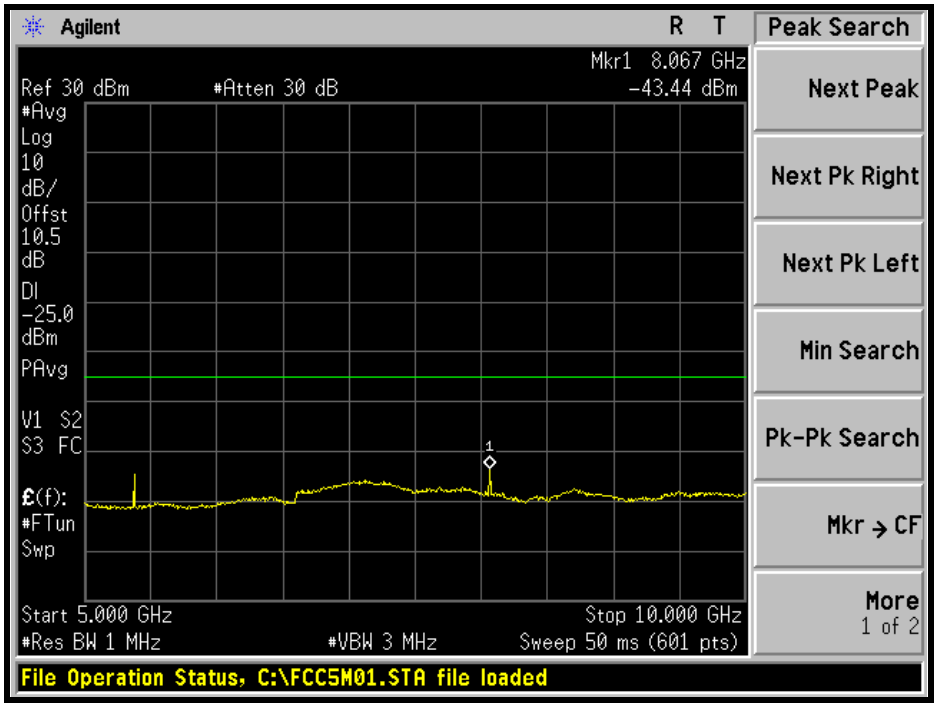
HIGH CHANNEL: 30MHz ~ 1GHz:



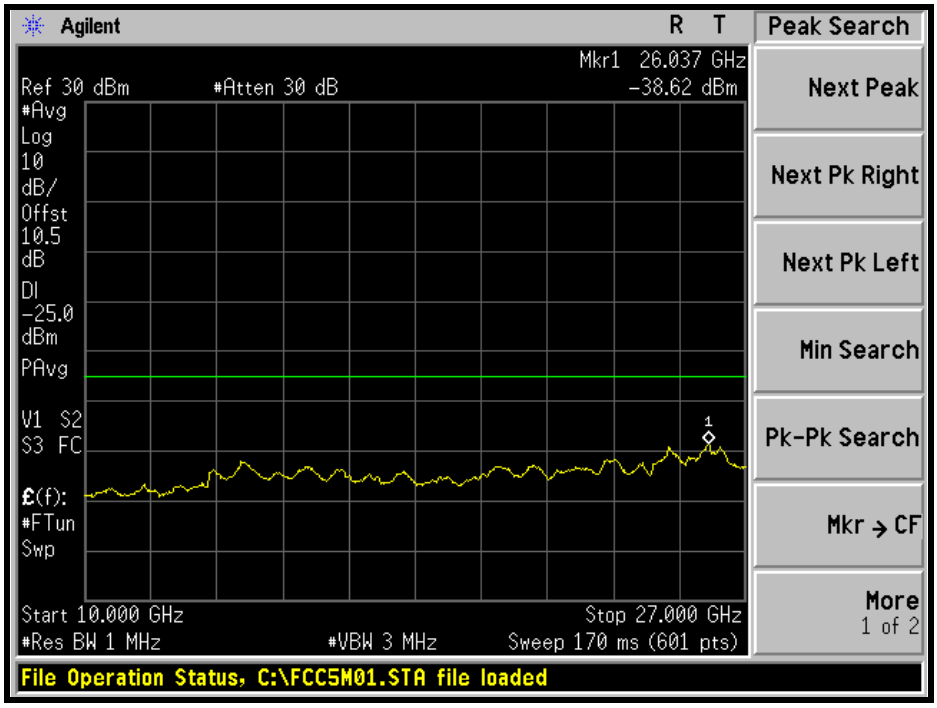
1GHz ~ 5GHz:



5GHz ~ 10GHz:

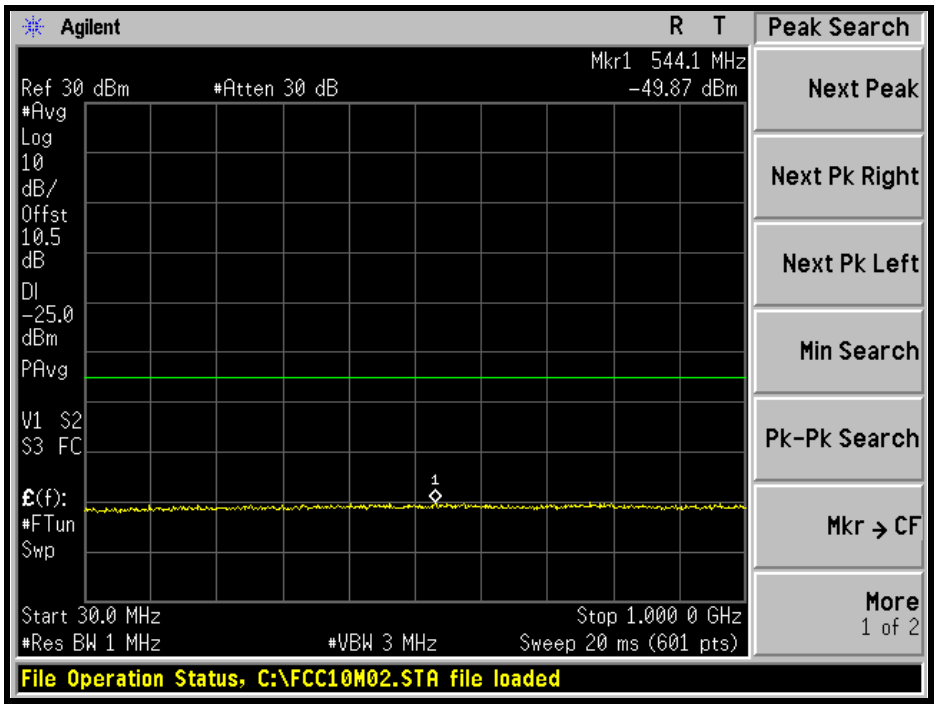


10GHz ~ 27GHz:

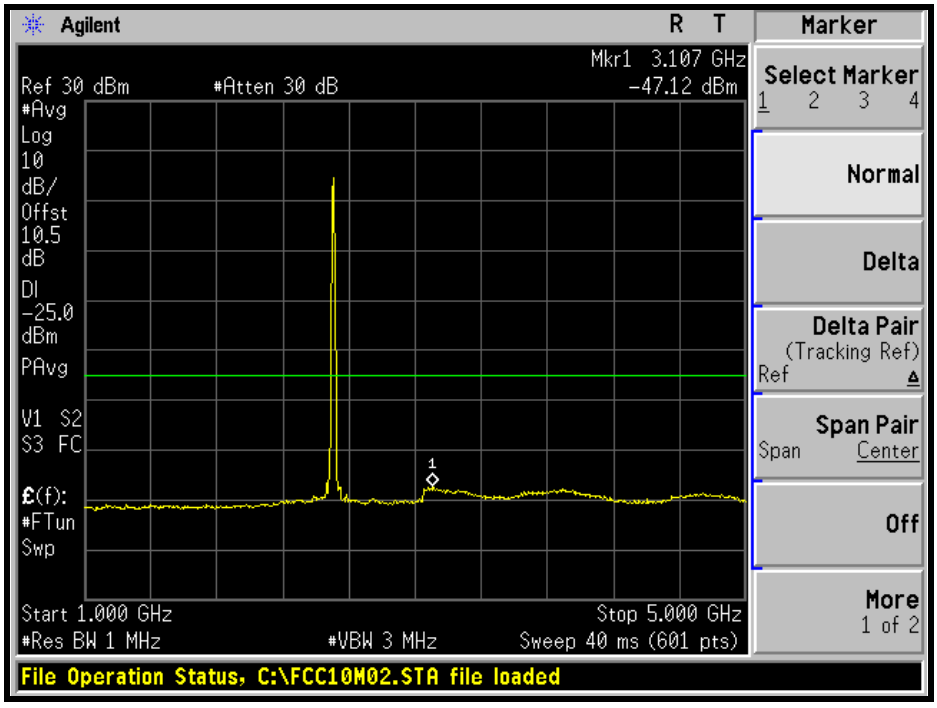


CHANNEL BANDWIDTH: 10MHz

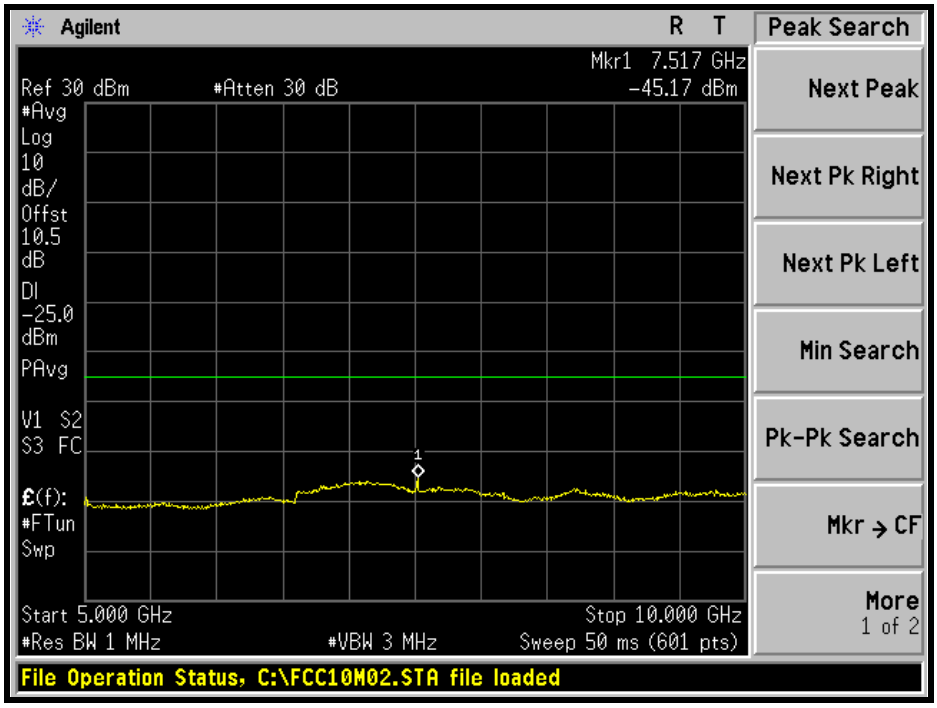
LOW CHANNEL: 30MHz ~ 1GHz:



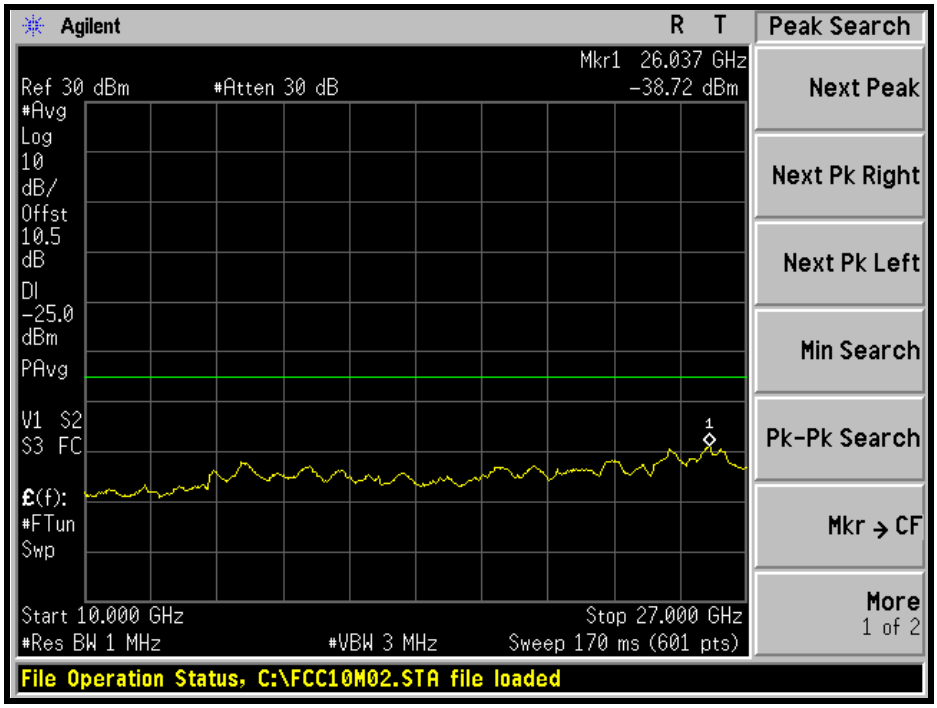
1GHz ~ 5GHz:



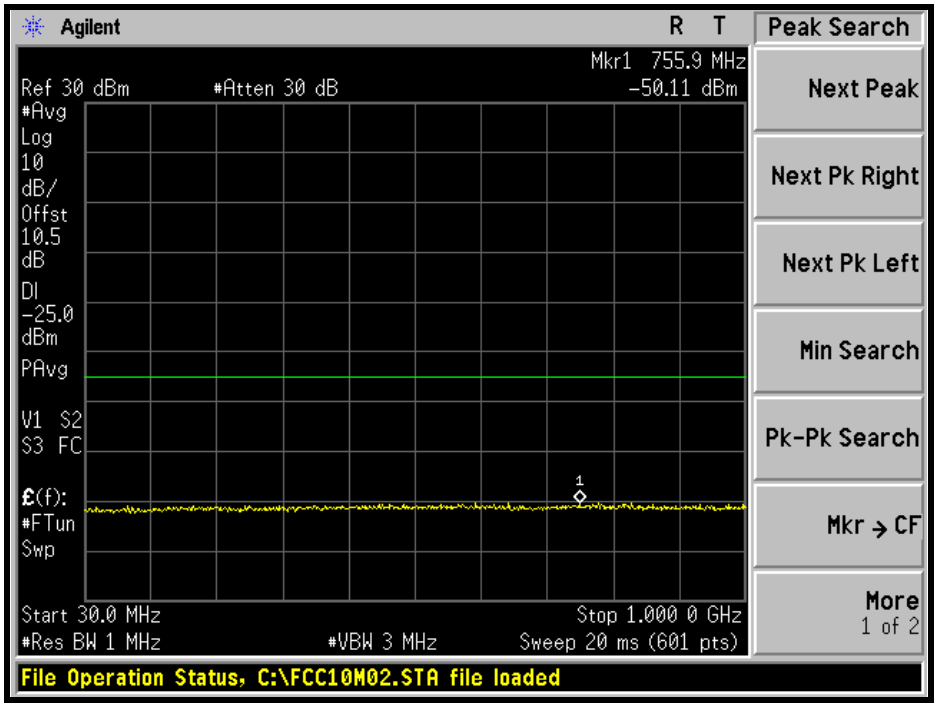
5GHz ~ 10GHz:



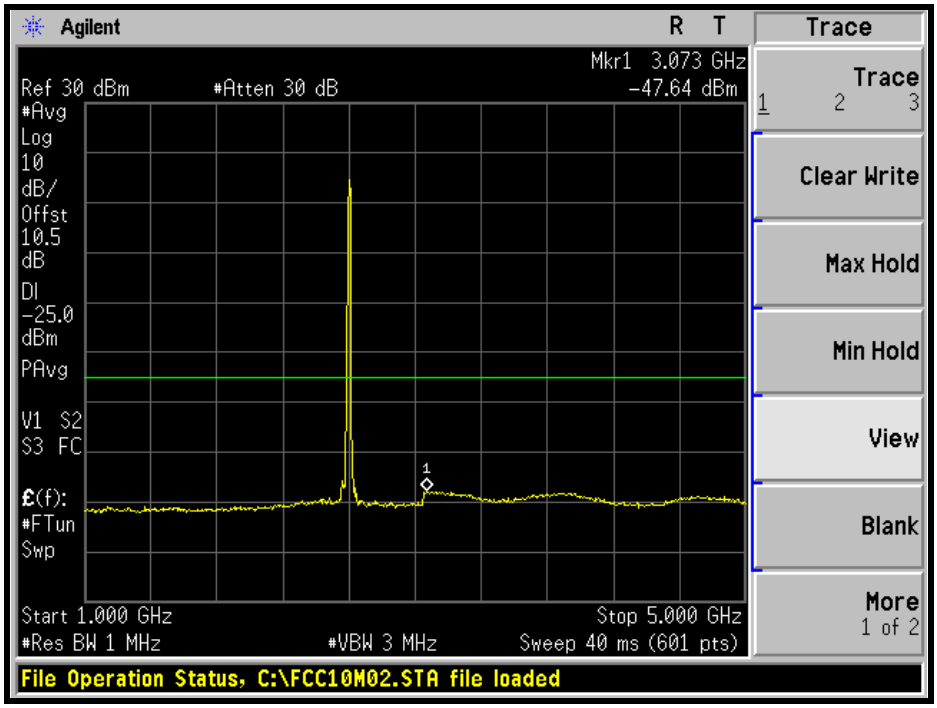
10GHz ~ 27GHz:



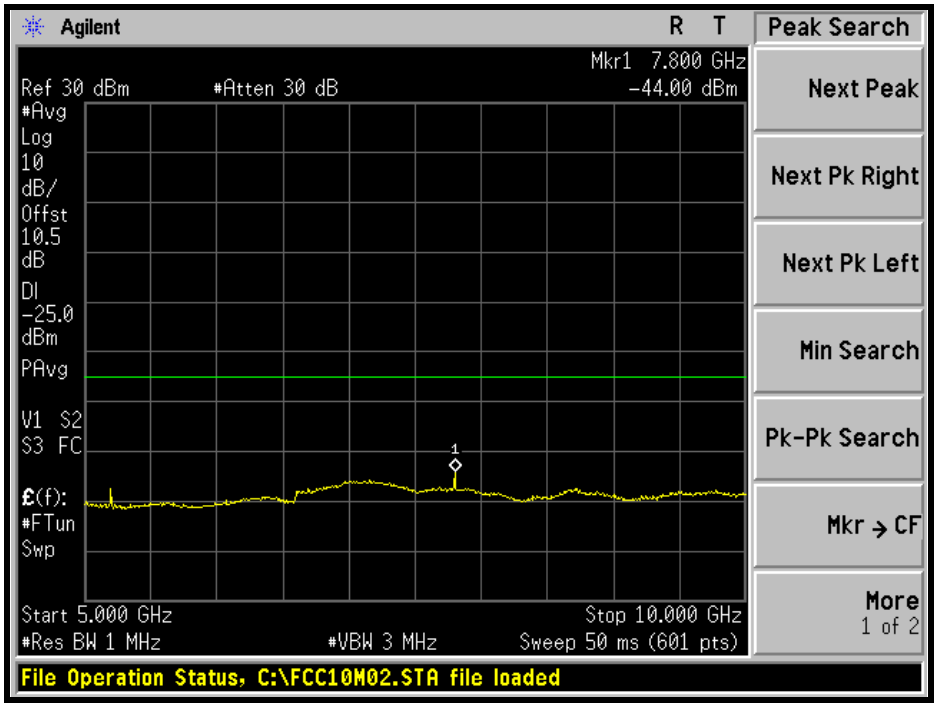
MIDDLE CHANNEL: 30MHz ~ 1GHz:



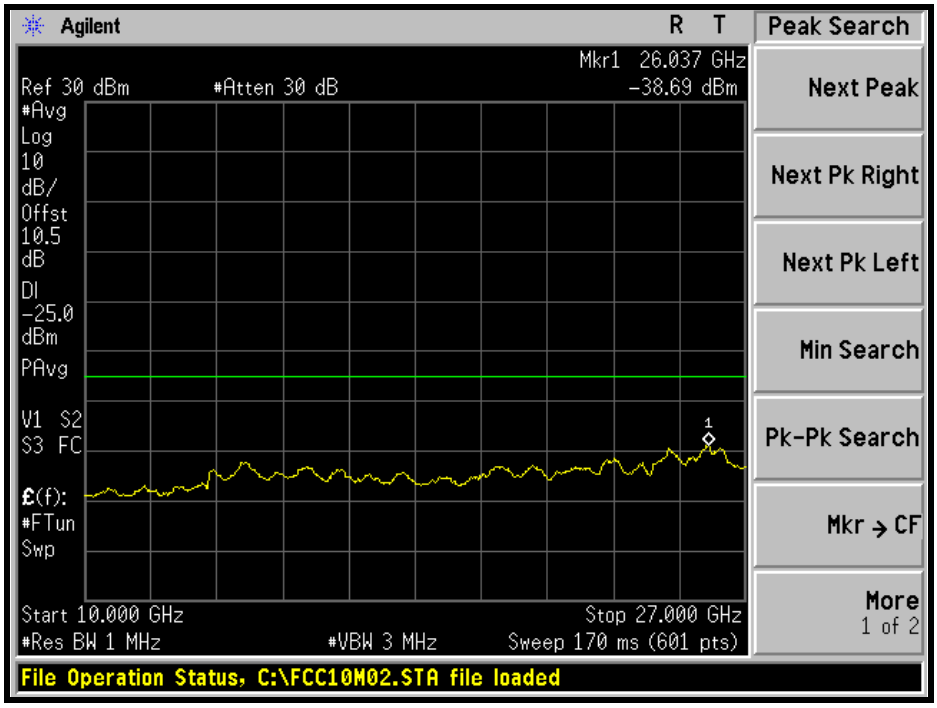
1GHz ~ 5GHz:



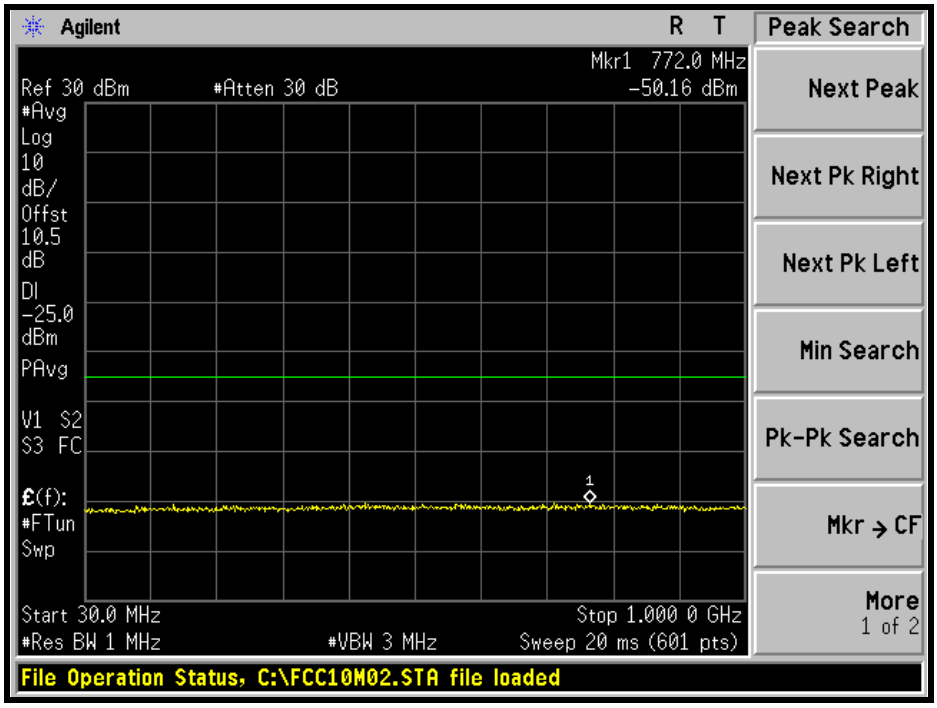
5GHz ~ 10GHz:



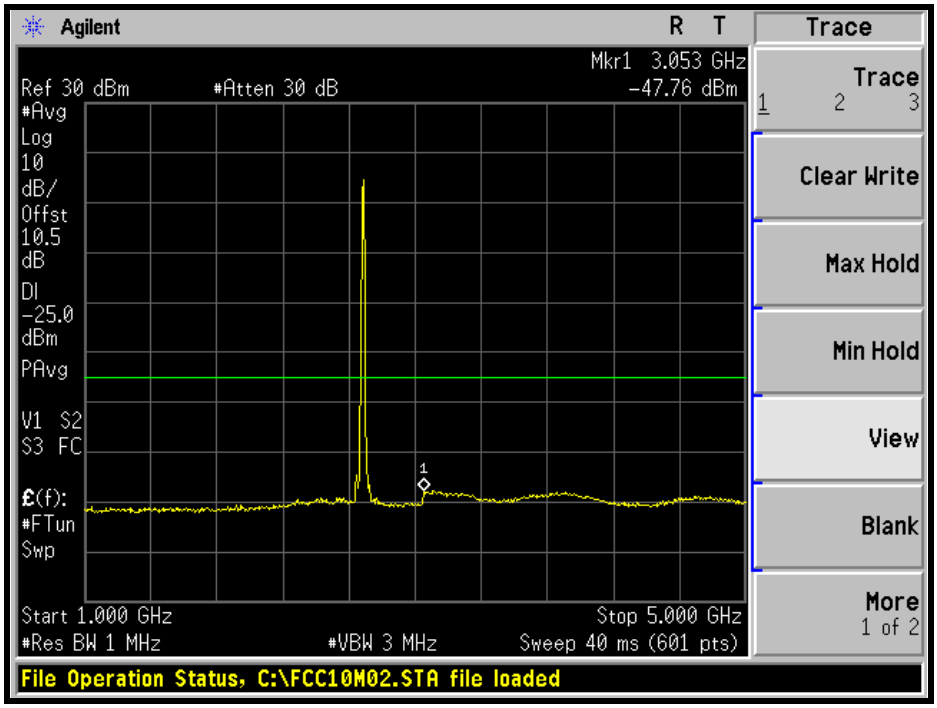
10GHz ~ 27GHz:



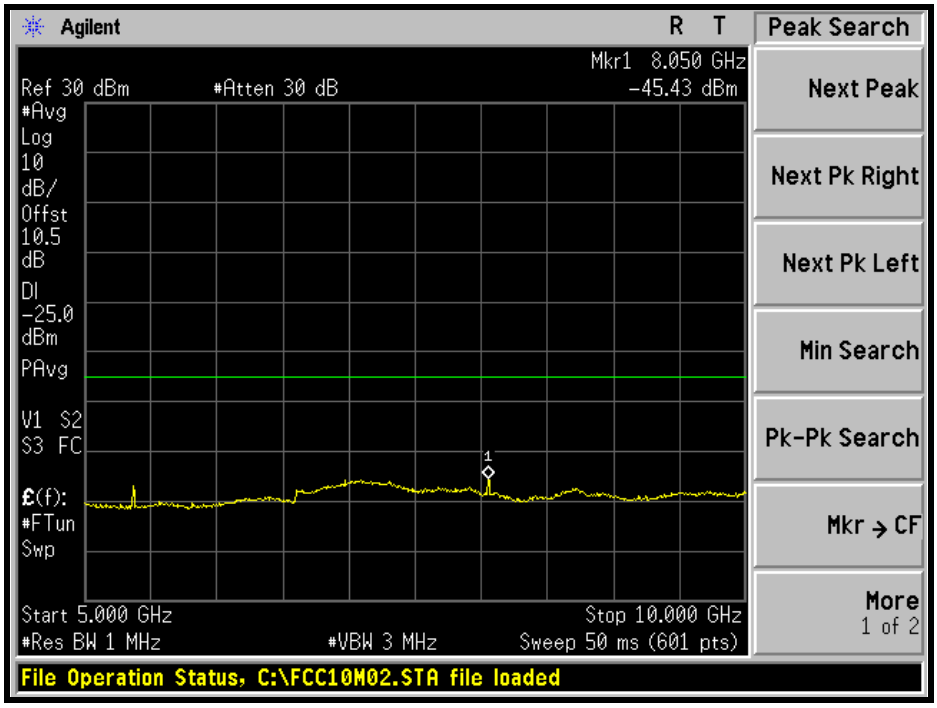
HIGH CHANNEL: 30MHz ~ 1GHz:



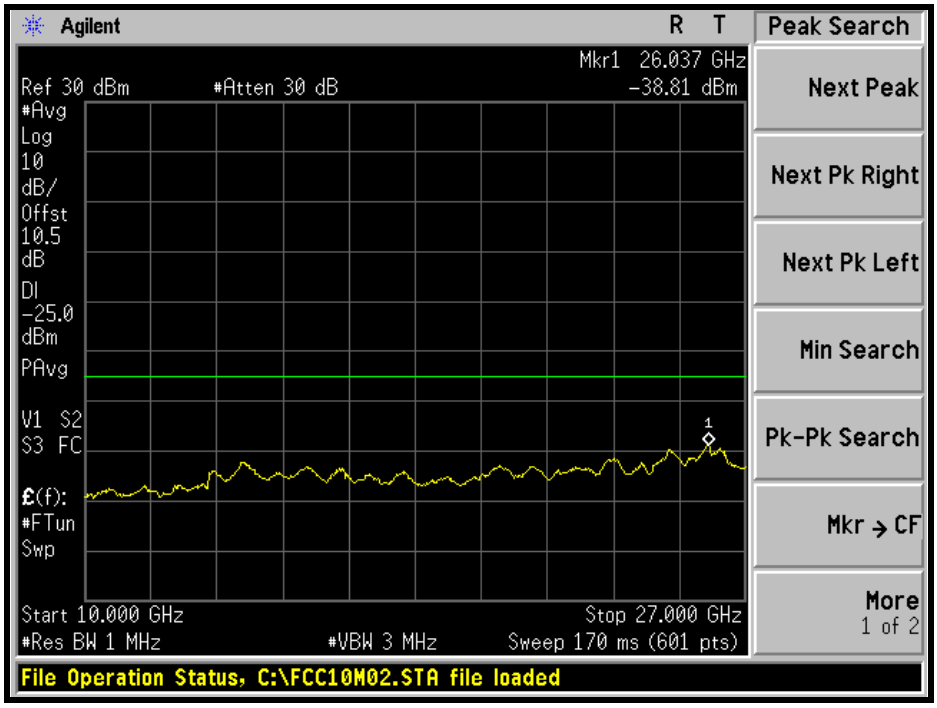
1GHz ~ 5GHz:



5GHz ~ 10GHz:



10GHz ~ 27GHz:



4.6 RADIATED EMISSION MEASUREMENT (BELOW 1GHz)

4.6.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 27.53(m) (4), On any frequency outside a licensee's frequency block the power of any emission shall be attenuated below the transmitter power (P) by at least 43 +10 log (P)dB and 55 + 10 log (P) dB at 5.5 MHz from the channel edges.

4.6.2 TEST INSTRUMENTS

Test date: July 19, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY48250113	Nov. 30 , 2010	Nov. 29 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 14, 2011	Apr. 13, 2012
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 17, 2011	Jan. 16, 2012
R&S Loop Antenna	HFH2-Z2	100070	Feb. 03, 2010	Feb. 02, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+RF106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.6.3 TEST PROCEDURES

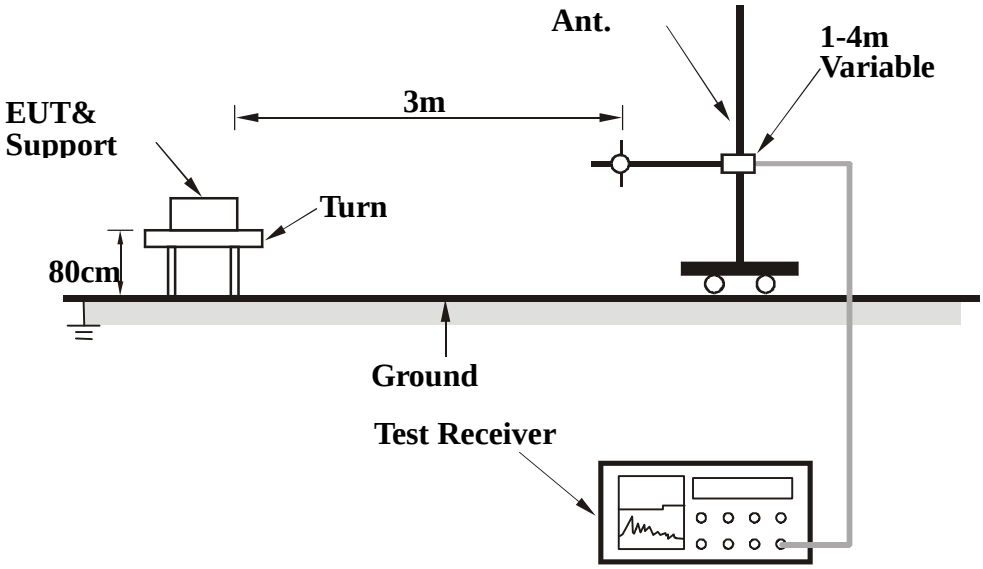
1. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
2. Substitution method is used for E.I.R.P measurement. In the open area test site, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
3. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step b. Record the power level of S.G
4. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution antenna.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.6.4 DEVIATION FROM TEST STANDARD

No deviation

4.6.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.6.6 EUT OPERATING CONDITIONS

Same as item 4.1.5

4.6.7 TEST RESULTS(MODE 1)

CHANNEL BANDWIDTH: 5MHz

MODE	High channel	FREQUENCY RANGE	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	ENVIRONMENTAL CONDITIONS	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	134	39.6	-25	-53.04	-1.27	-54.31
2	220	24.9	-25	-67.13	0.68	-66.45
3	350	29.8	-25	-66.92	2.45	-64.47
4	400	27.5	-25	-69.54	2.53	-67.01
5	700	27.3	-25	-70.64	3.22	-67.42
6	949.6	39.1	-25	-62.59	3.86	-58.73

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	82	33.1	-25	-60.67	-1.66	-62.33
2	134.76	31.2	-25	-61.60	-1.28	-62.88
3	450	26.2	-25	-72.06	2.81	-69.25
4	500	25.1	-25	-70.42	2.89	-67.53
5	700	27.2	-25	-70.74	3.22	-67.52
6	949.6	48	-25	-53.69	3.86	-49.83

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

4.6.8 TEST RESULTS(MODE 2)

CHANNEL BANDWIDTH: 10MHz

MODE	Middle channel	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	134	39.56	-25	-53.08	-1.27	-54.35
2	220	24.99	-25	-67.04	0.68	-66.36
3	350	29.85	-25	-66.87	2.45	-64.42
4	400	27.42	-25	-69.62	2.53	-67.09
5	700	27.37	-25	-70.57	3.22	-67.35
6	949.6	39.12	-25	-62.57	3.86	-58.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	82	32.9	-25	-60.87	-1.66	-62.53
2	134.76	31.5	-25	-61.30	-1.28	-62.58
3	450	26.27	-25	-71.99	2.81	-69.18
4	500	25.22	-25	-70.30	2.89	-67.41
5	700	27.23	-25	-70.71	3.22	-67.49
6	949.6	48.16	-25	-53.53	3.86	-49.67

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

4.6.9 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 5MHz

MODE	High channel	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	134	39.56	-25	-53.08	-1.27	-54.35
2	220	24.99	-25	-67.04	0.68	-66.36
3	350	29.85	-25	-66.87	2.45	-64.42
4	400	27.42	-25	-69.62	2.53	-67.09
5	700	27.37	-25	-70.57	3.22	-67.35
6	949.6	39.12	-25	-62.57	3.86	-58.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	82	33.1	-25	-60.67	-1.66	-62.33
2	134.76	31.2	-25	-61.60	-1.28	-62.88
3	450	26.2	-25	-72.06	2.81	-69.25
4	500	25.1	-25	-70.42	2.89	-67.53
5	700	27.2	-25	-70.74	3.22	-67.52
6	949.6	48	-25	-53.69	3.86	-49.83

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

4.6.10 TEST RESULTS(MODE 4)

CHANNEL BANDWIDTH: 10MHz

MODE	Middle channel	**FREQUENCY RANGE**	Below 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	134	39.56	-25	-53.08	-1.27	-54.35
2	220	24.99	-25	-67.04	0.68	-66.36
3	350	29.85	-25	-66.87	2.45	-64.42
4	400	27.42	-25	-69.62	2.53	-67.09
5	700	27.37	-25	-70.57	3.22	-67.35
6	949.6	39.12	-25	-62.57	3.86	-58.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	82	32.9	-25	-60.87	-1.66	-62.53
2	134.76	31.5	-25	-61.30	-1.28	-62.58
3	450	26.27	-25	-71.99	2.81	-69.18
4	500	25.22	-25	-70.30	2.89	-67.41
5	700	27.23	-25	-70.71	3.22	-67.49
6	949.6	48.16	-25	-53.53	3.86	-49.67

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

4.7 RADIATED EMISSION MEASUREMENT (ABOVE 1GHz)

4.7.1 LIMITS OF RADIATED EMISSION MEASUREMENT

In the FCC 27.53(m) (4), On any frequency outside a licensee's frequency block the power of any emission shall be attenuated below the transmitter power (P) by at least 43 +10 log (P)dB and 55 + 10 log (P) dB at 5.5 MHz from the channel edges.

4.7.2 TEST INSTRUMENTS

Test date: July 19, 2011

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	CALIBRATED DATE	CALIBRATED UNTIL
ROHDE & SCHWARZ Spectrum Analyzer	FSP40	100036	Dec. 08, 2010	Dec. 07, 2011
Agilent PSA Spectrum Analyzer	E4446A	MY48250113	Nov. 30 , 2010	Nov. 29 , 2011
HP Pre_Amplifier	8449B	300801923	Nov. 01, 2010	Oct. 31, 2011
ROHDE & SCHWARZ Test Receiver	ESCS30	847124/029	Sep. 03, 2010	Sep. 02, 2011
SCHWARZBECK TRILOG Broadband Antenna	VULB 9168	138	Apr. 14, 2011	Apr. 13, 2012
Schwarzbeck Horn_Antenna	BBHA9120	D124	Dec. 17, 2010	Dec. 16, 2011
Schwarzbeck Horn_Antenna	BBHA 9170	BBHA9170153	Jan. 17, 2011	Jan. 16, 2012
R&S Loop Antenna	HFH2-Z2	100070	Feb. 03, 2010	Feb. 02, 2012
RF Switches	EMH-011	1001	NA	NA
RF CABLE (Chaintek)	Sucoflex 104+ Sucoflex 106	RF104-101+RF106-101	Aug. 24, 2010	Aug. 23, 2011
RF Cable	8DFB	STCCAB-30M-1GHz	NA	NA
Software	ADT_Radiated_V7.6.15.9.2	NA	NA	NA
CT Antenna Tower & Turn Table	NA	NA	NA	NA

Note: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to NML/ROC and NIST/USA.
2. The horn antenna, preamplifier (model: 8449B) and Spectrum Analyzer (model: FSP40) are used only for the measurement of emission frequency above 1GHz if tested.
3. The test was performed in Open Site No. C.
4. The FCC Site Registration No. is 656396.
5. The VCCI Site Registration No. is R-1626.
6. The CANADA Site Registration No. is IC 7450G-3.

4.7.3 TEST PROCEDURES

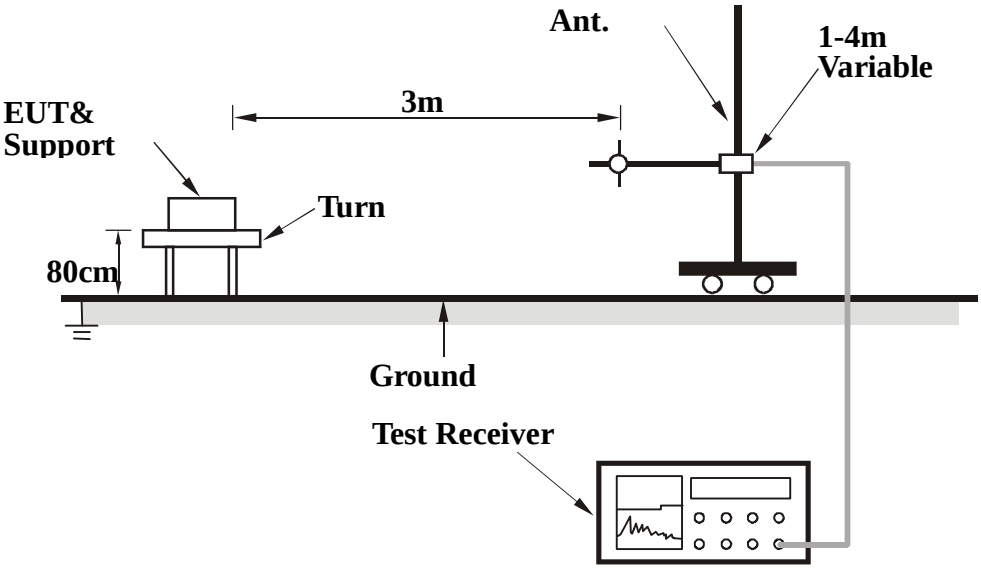
1. The power was measured with Spectrum Analyzer. All measurements were done at 3 channels (low, middle and high channel of operational frequency range.)
2. Substitution method is used for E.I.R.P measurement. In the open area test site, EUT placed on the 0.8m height of Turn Table, rotated the table around 360 degrees to search the maximum radiation power and receiver antenna shall be rotated vertical and horizontal polarization and moved height from 1m to 4m to find the maximum polar radiated power. The “Read Value” is the spectrum reading the maximum power value.
3. The substitution antenna is substituted for EUT at the same position and signals generator export the CW signal to the substitution antenna via a tx cable. Rotated the Turn Table and moved receiving antenna to find the maximum radiation power. Adjust output power level of S.G to get a Value of spectrum reading equal to “Read Value “ of step b. Record the power level of S.G
4. EIRP = Output power level of S.G – TX cable loss + Antenna gain of substitution antenna.

NOTE: The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 1MHz/3MHz.

4.7.4 DEVIATION FROM TEST STANDARD

No deviation

4.7.5 TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

4.7.6 EUT OPERATING CONDITIONS

Same as item 4.1.5

4.7.7 TEST RESULTS(MODE 1)

CHANNEL BANDWIDTH: 5MHz

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5005	47.5	-25	-56.74	7.01	-49.73
2	7507.5	45.8	-25	-56.82	4.54	-52.28
3	10010	42.2	-25	-59.37	4.03	-55.34

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M

No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5005	52.8	-25	-51.44	7.01	-44.43
2	7507.5	53.9	-25	-48.72	4.54	-44.18
3	10010	42	-25	-59.57	4.03	-55.54

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	50.8	-25	-53.73	7.05	-46.68
2	7800	48	-25	-54.62	4.29	-50.33
3	10400	49.5	-25	-52.51	3.66	-48.84

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	55.9	-25	-48.63	7.05	-41.58
2	7800	54.7	-25	-47.92	4.29	-43.63
3	10400	50.1	-25	-51.91	3.66	-48.24

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	55.7	-25	-49.09	7.09	-42.00
2	8062.5	50.2	-25	-52.42	4.13	-48.29
3	10750	55.9	-25	-45.94	3.33	-42.60

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	59.7	-25	-45.09	7.09	-38.00
2	8062.5	56.2	-25	-46.42	4.13	-42.29
3	10750	56.8	-25	-45.04	3.33	-41.70

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

4.7.8 TEST RESULTS(MODE 2)

CHANNEL BANDWIDTH: 10MHz

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5010	46.7	-25	-57.55	7.01	-50.53
2	7515	42.8	-25	-59.82	4.53	-55.29
3	10020	41.6	-25	-59.98	4.02	-55.96

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5010	56.7	-25	-47.55	7.01	-40.53
2	7515	55.1	-25	-47.52	4.53	-42.99
3	10020	52.7	-25	-48.88	4.02	-44.86

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	50.7	-25	-53.83	7.05	-46.78
2	7800	45.3	-25	-57.32	4.29	-53.03
3	10400	48.4	-25	-53.61	3.66	-49.94

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	58.4	-25	-46.13	7.05	-39.08
2	7800	58.3	-25	-44.32	4.29	-40.03
3	10400	53.7	-25	-48.31	3.66	-44.64

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5370	54.5	-25	-50.29	7.09	-43.19
2	8055	47	-25	-55.62	4.13	-51.49
3	10740	54.8	-25	-47.05	3.34	-43.71

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5370	59.2	-25	-45.59	7.09	-38.49
2	8055	58.5	-25	-44.12	4.13	-39.99
3	10740	55.5	-25	-46.35	3.34	-43.01

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

4.7.9 TEST RESULTS(MODE 3)

CHANNEL BANDWIDTH: 5MHz

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5005	49.7	-25	-54.54	7.01	-47.53
2	7507.5	45.4	-25	-57.22	4.54	-52.68
3	10010	44.1	-25	-57.47	4.03	-53.44

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5005	54	-25	-50.24	7.01	-43.23
2	7507.5	50.1	-25	-52.52	4.54	-47.98
3	10010	43.9	-25	-57.67	4.03	-53.64

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	53.3	-25	-51.23	7.05	-44.18
2	7800	47.1	-25	-55.52	4.29	-51.23
3	10400	49.8	-25	-52.21	3.66	-48.54

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	58.1	-25	-46.43	7.05	-39.38
2	7800	54.1	-25	-48.52	4.29	-44.23
3	10400	51.4	-25	-50.61	3.66	-46.94

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	57.2	-25	-47.59	7.09	-40.50
2	8062.5	50.3	-25	-52.32	4.13	-48.19
3	10750	56.1	-25	-45.74	3.33	-42.40

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5375	62.7	-25	-42.09	7.09	-35.00
2	8062.5	57.2	-25	-45.42	4.13	-41.29
3	10750	59.4	-25	-42.44	3.33	-39.10

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

4.7.10 TEST RESULTS(MODE 4)

CHANNEL BANDWIDTH: 10MHz

MODE	Low channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5010	47.1	-25	-57.15	7.01	-50.13
2	7515	44.2	-25	-58.42	4.53	-53.89
3	10020	40.4	-25	-61.18	4.02	-57.16

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5010	51	-25	-53.25	7.01	-46.23
2	7515	46.1	-25	-56.52	4.53	-51.99
3	10020	39.9	-25	-61.68	4.02	-57.66

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	Middle channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	46.6	-25	-57.93	7.05	-50.88
2	7800	44.6	-25	-58.02	4.29	-53.73
3	10400	40.7	-25	-61.31	3.66	-57.64

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5200	55.4	-25	-49.13	7.05	-42.08
2	7800	50	-25	-52.62	4.29	-48.33
3	10400	49.2	-25	-52.81	3.66	-49.14

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

MODE	High channel	**FREQUENCY RANGE**	Above 1000MHz
INPUT POWER (SYSTEM)	120Vac, 60Hz	**ENVIRONMENTAL CONDITIONS**	20deg°C, 60%RH
TESTED BY	Kent Liu		

ANTENNA POLARITY & TEST DISTANCE: HORIZONTAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5370	46.7	-25	-58.09	7.09	-50.99
2	8055	43.4	-25	-59.22	4.13	-55.09
3	10740	41.1	-25	-60.75	3.34	-57.41

ANTENNA POLARITY & TEST DISTANCE: VERTICAL AT 3 M						
No.	Freq. (MHz)	Emission Level (dBuV/m)	Limit (dBm)	S.G level (dBm)	C.F. (dB)	Power level (dBm)
1	5370	60	-25	-44.79	7.09	-37.69
2	8055	54.1	-25	-48.52	4.13	-44.39
3	10740	58.5	-25	-43.35	3.34	-40.01

REMARKS: 1. Power Value(dBm)=S.G Power Value (dBm) + Correction Factor(dB)

5 PHOTOGRAPHS OF THE TEST CONFIGURATION

Please refer to the attached file (Test Setup Photo).

6 INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved according to ISO/IEC 17025:

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5.phtml.
If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26052943

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
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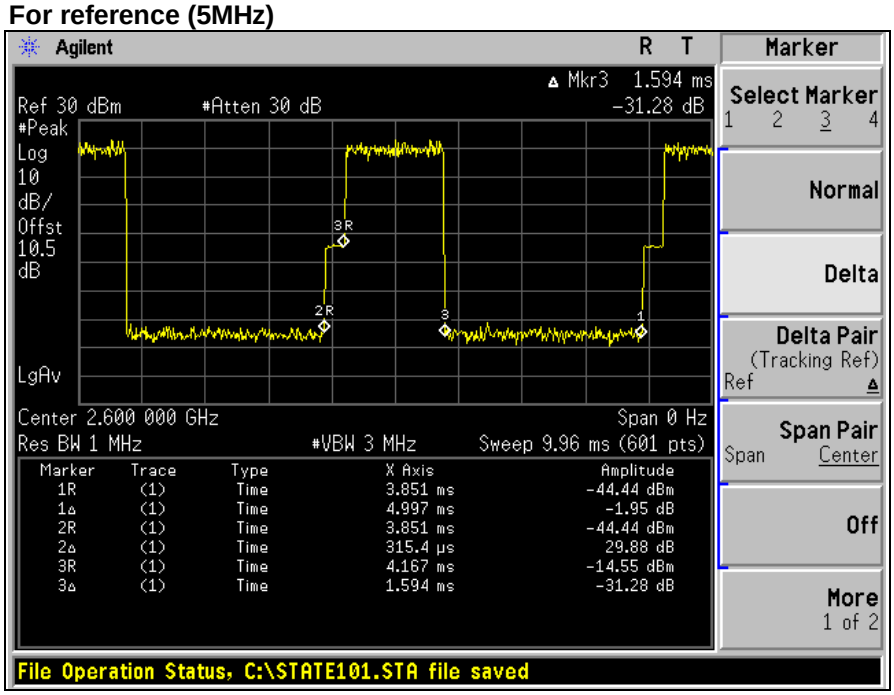
Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Email: service.adt@tw.bureauveritas.com
Web Site: www.adt.com.tw

The address and road map of all our labs can be found in our web site also.

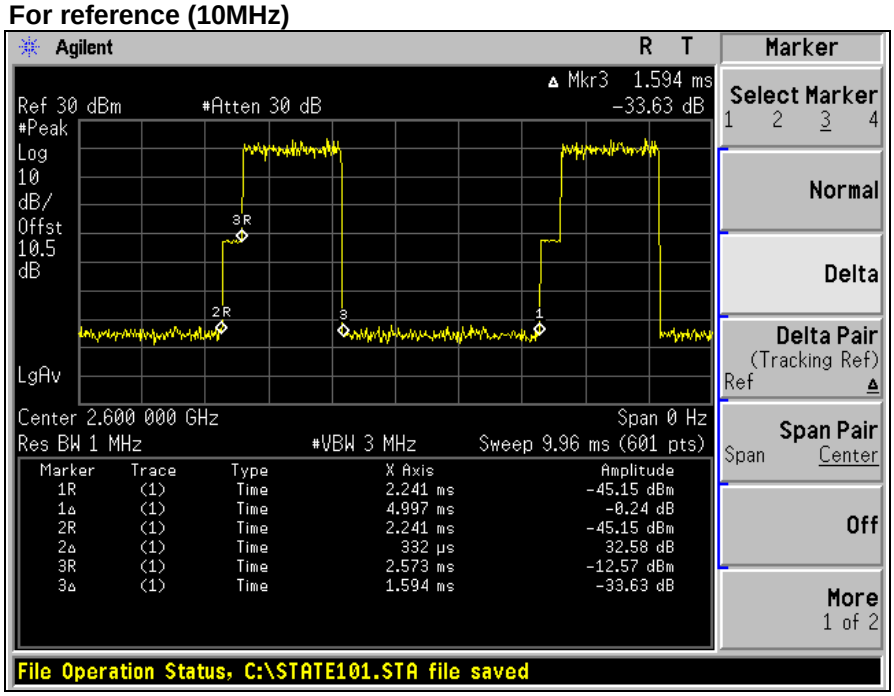
7 APPENDIX - A DL/UL RATION FOR TEST

For reference (5MHz)



Ratio = (1.594/4.997) *% = 31.90%

For reference (10MHz)



Ratio = (1.594/4.997) *% = 31.90%

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